

# 517 Usability Study Kit | OpenELIS

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# Screening Questionnaires

Google Forms:

[https://docs.google.com/forms/d/1RdP9hQiLNh\\_7LgRlJ4pGAfp3xV08T81RcENVhR4KP3g/edit?usp=sharing](https://docs.google.com/forms/d/1RdP9hQiLNh_7LgRlJ4pGAfp3xV08T81RcENVhR4KP3g/edit?usp=sharing)

We are a group of graduate students at the University of Washington in the Department of Human Centered Design and Engineering. For a graduate program project, we are working with the team at OpenELIS to learn how to improve the software. OpenELIS is an open-source laboratory information system specifically designed for low-resource settings. To learn more about OpenELIS, refer to <https://openelis-global.org/usai>.

We are inviting you to participate in a voluntary usability test to help optimize the OpenELIS software. The usability testing session will last for one hour and be conducted between February 17th and February 27th. If you are interested in participating, please complete the details below.

- 
1. Full Name
  2. Email Address
  3. Job Title (e.g. lab technician)  
[Disqualify if the job title is not relevant to positions in laboratories]
  4. Location (Country)
  5. How long have you used OpenELIS?
    - a. I have never used OpenELIS [Categorize as Group 1 - New User]
    - b. 1-3 months [Categorize as Group 2 - Existing User]
    - c. 4-12 months [Categorize as Group 2 - Existing User]
    - d. 1+ years [Categorize as Group 2 - Existing User]
  6. Which sentence best describes you?
    - a. I usually use OpenELIS multiple times a day.
    - b. I usually use OpenELIS multiple times a week.
    - c. I usually use OpenELIS multiple times a month.
    - d. I have never used OpenELIS.
  7. How comfortable are you in using OpenELIS?

1 2 3 4 5 6 7

I don't know how to use OpenELIS

I am proficient and know my way  
around the program

8. How would you rate your computer (desktop or laptop with keyboard) competency?
- a. Poor
  - b. Fair
  - c. Good
  - d. Excellent

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Thank you for agreeing to participate! We will reach out soon to schedule a time for the usability test. We really appreciate your time.

# Consent Form

Consent will be collected using this Google Form:

[https://docs.google.com/forms/d/1r\\_bE0SgcUOr-CEjV6oQTik5N6kVjZpDDEkh19CmV03k/e/dit?usp=sharing](https://docs.google.com/forms/d/1r_bE0SgcUOr-CEjV6oQTik5N6kVjZpDDEkh19CmV03k/e/dit?usp=sharing)

## CONSENT TO PARTICIPATE IN A CLASS PROJECT

### OpenELIS Usability Study

We are inviting you to be a part of a usability study to help learn more about what works and what does not work with the OpenELIS software. This consent process should give you all the information you need to decide whether or not you want to participate in this study. Being in the study is completely voluntary. We will not tell your employer or OpenELIS team if you decline to participate. If you decide to participate, you are free to stop the study at any time. Please read this carefully, and you may ask any questions about the study. You can then decide whether or not you want to participate in the study.

#### Overview

OpenELIS is a cloud-based, open-source lab management information system for low-resourced healthcare laboratories. Available in three languages (English, French, & Vietnamese), OpenELIS is currently being used in 8 countries including Côte d'Ivoire, Haiti, and Mauritius. We are interested in improving the experience of the lab managers, biologists, lab technicians, and data entry clerks who utilize the system for lab order entry and results.

#### Your rights as a participant

Participating in the study is completely voluntary. By signing this form you confirm your intent to participate and consent the use of your information for the sole purpose of the research study. Your identifiable information (name, position, location) will be shared with the OpenELIS researchers listed below.

- **Usability study researchers**

- Rafael Laus, Master's Student, Human Centered Design & Engineering | rlaus@uw.edu
- Jisu Park, Master's Student, Human Centered Design & Engineering | jpark06@uw.edu
- Austin Kohnle, Master's Student, Human Centered Design & Engineering | austinck@uw.edu
- Beth Dunbar, Doctoral Student, Human Centered Design & Engineering | edun@uw.edu

The main results of this usability study will be shared back with the OpenELIS team anonymously where we will aggregate feedback from all participants of this study. The aggregated results will also be shared with our master's class during a presentation.

### **Purpose of study**

We are looking to gain experience in usability techniques by conducting this study. We will explore the order entry, and results entry workflow using OpenELIS.

### **Methods**

Today's study should last one hour. The study will be a series of tasks, meant to mirror the real-world laboratory setting in performing the order entry (batch, ad hoc), electronic, and the results entry workflow. We will be taking a video recording of this session since not all members of our study team can be here today so we want to be able to watch and learn as much as possible from your participation.

### **Benefits & Risks**

Participating in our usability study is greatly appreciated, but does not benefit you personally (e.g. there is no monetary compensation). However, participation will help us better understand how people use the lab management information system with the goal of improving features to optimize and strengthen the software's use.

A potential risk of participating in this study is discomfort in not understanding a particular question. Please remember the study team is trying to learn about the *software* and this is not a test of your skills or abilities. At any time you want to skip questions or leave a session, you are more than welcome to do so by informing one of the researchers.

- Do you have any questions for our study team?
- Do you want to participate in this study?
- It is okay for us to begin recording the session now?

Participant Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Facilitation Script

## Introductions

[Moderator Role]

Hello! My name is \_\_\_\_! My role as the moderator is to help you through this usability study.

[Note Taker Role]

Hello! My name is \_\_\_\_! My role is to take good notes about this session to share with our team. I'll turn off my camera during this session.

[Moderator Role]

We are both graduate students at the University of Washington. Today we will be conducting a usability study with the OpenELIS Laboratory data system. This test will be roughly one hour long. If you need a break or want to stop please let us know, your participation is completely voluntary. Thank you for taking time out of your day to support this study. It should last for about an hour.

As you know, this session will be recorded. Do you still feel comfortable with that?

[Start the recording!]

## Pre-Study Questionnaire

Welcome to the OpenELIS usability study. We'll start by confirming your answers to the questions you filled out in the initial survey. You are welcome to ask any questions at any time.

[Pull information from Screener Survey - [LINK](#)]

[Pull information from Consent Form Survey - [LINK](#)]

1. To confirm, you are here to participate in a usability study for OpenELIS.
2. Did you sign the consent form? [check using the link above]
3. Your name is \_\_\_\_ [information available from the link above]
4. Your job title is \_\_\_\_
5. You are located in \_\_\_\_
6. You answered \_\_\_\_ for 'how long have you used OpenELIS?'
7. You answered \_\_\_\_ for 'how often do you use OpenELIS?'
8. You answered \_\_\_\_ for 'how comfortable are you in using OpenELIS?'

9. You answered \_\_\_\_ for 'how would you rate your computer competency?'

I have a couple more questions for you.

1. [If the participant has used OpenELIS before] Please describe the last time you used OpenELIS.
2. Do you have any more questions before we begin?

[Think Aloud - start your stopwatch]

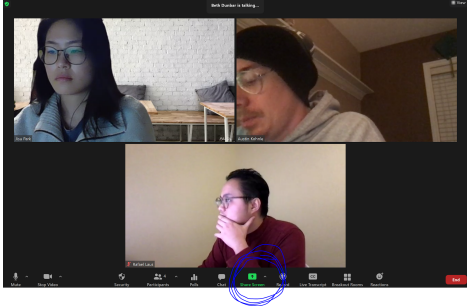
For these scenarios, we are going to ask you to think aloud while you are completing the tasks. By "thinking aloud" we'd like you tell us what you're looking at and explain what you're doing as you are doing a task. This think-aloud approach allows us to better understand your expectations with the software and determine what is working and what is confusing in the system. As a reminder, we are not testing you, we are interested in how you go about completing a task. By you describing your actions, we will better understand the software.

**As you begin the task you can describe things like:**

- What is your initial goal? Describe the page/ section. For example, "Right now, I need to enter a new lab order"
- Say anything that comes to mind related to what you are doing
- For example:
  - When you hover on an item/ button/ dropdown, you can describe what you expect it to do.
  - You can share what you expect a button to do or share that something was unexpected
  - You can share things like
    - "This text/instruction/image/etc. is confusing"
    - "This is easy/difficult"
    - "This is what I think this text/instruction/image/etc. means"
    - "I like/dislike this"
    - "This is not what I need – I need XX instead"
- **If something is confusing:**
  - First describe what is confusing about the task or the OpenELIS software. I can provide help as needed or help clarify a task.

Now, we'd like you to share your screen with us so we can see what's happening on your side.

[Optional screenshot to show the users how to share their screens with us.]



**Scenario A: Printed packet** -- You should have a printed packet of papers called the *Supplement Document* with you to support this usability study. Would you show me this packet? [Check to see it's the right packet]

**Scenario B: No printed packet** -- We're going to give you a link to a *Supplement Packet* of information. [Give participants this link: <https://docs.google.com/document/d/1Ib-zh50kF1DEat4dTPS2VyYJ3HiKyULV/edit>] Inside this packet there's a link to the OpenELIS test server. Please click that link. We'd like you to put the OpenELIS on one side of your screen and the *Supplement Packet* on the other side so you can see them side-by side.

Now that we are all set up to get started, let's sign in to OpenELIS. Using information in the *Supplement Document*, can you sign in to OpenELIS?

[Start scenarios in the predetermined random order: either order entry or results entry first]

### Tasks Scenario - Order Entry

We are going to ask you to complete 2 different tasks of ordering a test.

First, using the details from *Order Entry Scenario #1* from the *Supplement Document*, submit an order entry.

[After completing the task, fill out the post-task survey with the participant - [LINK](#)]

Next, using the details from *Order Entry Scenario #2* from the *Supplement Document*, submit an electronic order.

[After completing the task, fill out the post-task survey with the participant - [LINK](#)]



## Tasks Scenario - Results Entry

We are going to ask you to complete 2 different tasks of submitting test results.

First, using the details from *Order Entry Scenario #3* from the *Supplement Document*, would you submit test results?

[After completing the task, fill out the post-task survey with the participant - [LINK](#)]

Next, using the details from *Order Entry Scenario #4* from the *Supplement Document*, would you submit test results?

[After completing the task, fill out the post-task survey with the participant - [LINK](#)]

Thank you for all of your work testing this software. We have one final survey for you to learn more about your experience today. We will share a link with you here and this survey should take less than 5 minutes.

- [PREVIEW LINK FOR OUR TEAM:](#)
- [https://csunsbs.ca1.qualtrics.com/jfe/preview/SV\\_e1CW3wqW9pHbtpc?Q\\_CHL=p\\_review&Q\\_SurveyVersionID=current](https://csunsbs.ca1.qualtrics.com/jfe/preview/SV_e1CW3wqW9pHbtpc?Q_CHL=p_review&Q_SurveyVersionID=current)
- [LIVE LINK FOR PARTICIPANTS ONLY >> OpenELIS UsabilitySurvey](#)

Our study team and the OpenELIS Team greatly appreciate your time today and we greatly thank you for your participation.

# Participant Supplement Document

[This document will be shared with participants prior to the usability study and asked to be printed out.]

Please use this document to complete upcoming tasks for the usability study of OpenELIS.

## SIGN IN CREDENTIALS - OpenELIS

URL: [demo.openelisci.org](http://demo.openelisci.org)

Username: demo

Password: demoDEMO!

## ORDER ENTRY Scenario #1 [Easy level: Entering individual order with fewer than 3 samples]

Order Information	
Request Date:	04/02/2021
Date of next clinic appointment:	15/02/2021
Site Name (Referring Facility) :	CHU Treichville
Referring Provider :	Dr. Dominique DUSSEL
Tel :	+225 230 5 123 4567
Email:	ddussel@email.com
Patient Information	
Last Name	Ramswamy
First Name	Hari
Unique Health ID Number	09-368-9
National ID Number	F998844
Address (Street, Town, District)	17 Route des Palmes Beaumont, BELIER
Tel.	1 234 5678
Email	hram@email.com
Date of Birth	09 October 1982
Sex	Male
Education	Post Secondary
Marital Status	Married
Nationality	Mauritius
Test Information	
Tests Ordered (Sample Type)	Blood Panel Test (Whole Blood) SARS-CoV-2 (Nasopharyngeal Swab)

**ORDER ENTRY Scenario #2** [Intermediate level: Entering electronic order]

<b>Order Information</b>	
Request Date:	14/10/2020
Date of next clinic appointment:	
Site Name (Referring Facility) :	Airport
Referring Provider :	Dr.
Tel :	
Email:	
<b>Patient Information</b>	
Last Name	Dayal
First Name	Sheila
Unique Health ID Number	
National ID Number	123456
Address (Street, Town, District)	
Tel.	23057859123
Email	pmohabeer@govmu.org
Date of Birth	11 October 1983
Sex	Female
Education	
Marital Status	
Nationality	Mauritius
<b>Test Information</b>	
Tests Ordered (Sample Type)	SARS-CoV-2 (Nasopharyngeal Swab)

<b>Order Information</b>	
Request Date:	14/10/2020
Date of next clinic appointment:	
Site Name (Referring Facility) :	Airport
Referring Provider :	Dr.
Tel :	
Email:	
<b>Patient Information</b>	
Last Name	Virgin
First Name	Michelle
Unique Health ID Number	
National ID Number	
Address (Street, Town, District)	
Tel.	12067345515
Email	mrv@uw.edu
Date of Birth	13 October 2013
Sex	Female
Education	
Marital Status	

Nationality	Mauritius
Test Information	
Tests Ordered (Sample Type)	SARS-CoV-2 (Nasopharyngeal Swab)

<b>Order Information</b>	
Request Date:	06/10/2020
Date of next clinic appointment:	
Site Name (Referring Facility) :	Airport
Referring Provider :	Dr.
Tel :	
Email:	
<b>Patient Information</b>	
Last Name	Rossum
First Name	Greg
Unique Health ID Number	
National ID Number	123
Address (Street, Town, District)	
Tel.	23051231234
Email	a@a.com
Date of Birth	13 October 2013
Sex	Male
Education	
Marital Status	
Nationality	Mauritius
<b>Test Information</b>	
Tests Ordered (Sample Type)	SARS-CoV-2 RNA (Nasopharyngeal Swab)

### RESULTS ENTRY Scenario #3 [Results by test]

<b>Test Information</b>	
Test Name	SARS-CoV-2 RNA (Nasopharyngeal Swab)
<b>Results</b>	
Lab Order Number	TESTA2100000000000078
Result	Negative
Lab Order Number	TESTA2100000000000041
Result	Negative
Lab Order Number	TESTA2100000000000034
Result	Indeterminate
Lab Order Number	TESTA2100000000000033
Result	Positive
Lab Order Number	TESTA2100000000000032

Result	Positive
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**RESULTS ENTRY Scenario #4** [Results by unit]

Test Information	
Unit	Biochemistry
Results	
Lab Order Number	TESTA2000000000000119
GOT/ASAT	33
GPT/ALAT	15
Creatinine	7
Amylase	222
Total Cholesterol	2.72
HDL Cholesterol	0.81
Triglycerides	1.5
Urine Description Test	Dark brown, cloudy
Lab Order Number	TESTA2010000000000001
GOT/ASAT	2
GPT/ALAT	11
Creatinine	133
Amylase	376
Total Cholesterol	2.2
HDL Cholesterol	0.64
Triglycerides	0.8
Urine Description Test	Light yellow, clear

## Post-Task Questionnaires

### Ordering a test - Scenario #1 and #2

Please rate each statement from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

1. Ordering tests was easy.

Strongly Disagree 1	2	3	4	Strongly Agree 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Ordering tests was efficient.

Strongly Disagree 1	2	3	4	Strongly Agree 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. What would make ordering a test easier or more efficient for you?

### Entering the result of a specific test - Scenario #1 and #2

Please rate each statement from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

1. Entering test results was easy.

Strongly Disagree 1	2	3	4	Strongly Agree 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Entering test results was efficient.

Strongly Disagree 1	2	3	4	Strongly Agree 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. What would make entering test results easier or more efficient for you?

## Post-Study Questionnaires

Below is the live link

[OpenELIS\\_UsabilitySurvey](#)

Preview link

[https://csunsubs.ca1.qualtrics.com/jfe/preview/SV\\_elCW3wqW9pHbtpc?Q\\_CHL=preview&Q\\_SurveyVersionID=current](https://csunsubs.ca1.qualtrics.com/jfe/preview/SV_elCW3wqW9pHbtpc?Q_CHL=preview&Q_SurveyVersionID=current)

Please rate each statement from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

1. I think that I would like to use OpenELIS frequently.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. I found OpenELIS unnecessarily complex.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. I thought OpenELIS was easy to use.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. I think that I would need the support of a technical person to be able to use OpenELIS.

<b>Strongly Disagree</b> 1	2	3	4	<b>Strongly Agree</b> 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. I found the various functions of OpenELIS were well integrated.

<b>Strongly Disagree</b> 1	2	3	4	<b>Strongly Agree</b> 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. I thought there was too much inconsistency with OpenELIS.

<b>Strongly Disagree</b> 1	2	3	4	<b>Strongly Agree</b> 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. I would imagine that most people would learn to use OpenELIS very quickly.

<b>Strongly Disagree</b> 1	2	3	4	<b>Strongly Agree</b> 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



8. I found OpenELIS to be very cumbersome to use.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. I felt very confident using OpenELIS.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. I needed to learn a lot of things before I could get going with OpenELIS software.

<b>Strongly Disagree 1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Strongly Agree 5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Data-Logging Forms

Google Sheets - [Performance Metrics](#)

0. Pre-Study Questions									
	Full Name	Email Address	Job Title	Location (Country)	How long have you used OpenELIS?	How often do you use OpenELIS?	How comfortable are you in using OpenELIS?	How would you rate your computer competency?	Please describe the last time you used OpenELIS
Participant 1									
Participant 2									
Participant 3									
Participant 4									
Participant 5									
Participant 6									
Participant 7									
Participant 8									
Participant 9									
Participant 10									
Participant 11									

1. TASK SUCCESS - BINARY									
1 = success 0 = fail	Order Entry Scenario #1 - Fill in order details	Order Entry Scenario #1 - Fill in sample details	Order Entry Scenario #1 - Fill in patient details	Order Entry Scenario #2 - Submit electronic order	Results Entry Scenario #1 - Find results by test	Results Entry Scenario #1 - Fill in results details	Results Entry Scenario #2 - Find results by unit	Results Entry Scenario #2 - Fill in results details	Average success for each participant
Participant 1									
Participant 2									
Participant 3									
Participant 4									
Participant 5									
Participant 6									
Participant 7									
Participant 8									
Participant 9									
Participant 10									
Participant 11									
Average success for each task									

2. # of Clicks										
Number of clicks it took to complete a task	Order Entry Scenario #1 - Fill in order details	Order Entry Scenario #1 - Fill in sample details	Order Entry Scenario #1 - Fill in patient details	Order Entry Scenario #2 - Submit electronic order	Results Entry Scenario #1 - Find results by test	Results Entry Scenario #1 - Fill in results details	Results Entry Scenario #2 - Find results by unit	Results Entry Scenario #2 - Fill in results details	Average # of clicks for each participant	
Participant 1										
Participant 2										
Participant 3										
Participant 4										
Participant 5										
Participant 6										
Participant 7										
Participant 8										
Participant 9										
Participant 10										
Participant 11										
Average # of clicks for each task										

3. # of Helps										
Number of times participant got help to complete a task	Order Entry Scenario #1 - Fill in order details	Order Entry Scenario #1 - Fill in sample details	Order Entry Scenario #1 - Fill in patient details	Order Entry Scenario #2 - Submit electronic order	Results Entry Scenario #1 - Find results by test	Results Entry Scenario #1 - Fill in results details	Results Entry Scenario #2 - Find results by unit	Results Entry Scenario #2 - Fill in results details	Average # of helps for each participant	
Participant 1										
Participant 2										
Participant 3										
Participant 4										
Participant 5										
Participant 6										
Participant 7										
Participant 8										
Participant 9										
Participant 10										
Participant 11										
Average # of helps for each task										

4. Post-Task Questions												
Answer to following questions	Order Entry Scenario #1 - Ordering tests was easy	Order Entry Scenario #1 - Ordering tests was efficient	What would make ordering easier or more efficient for you?	Order Entry Scenario #2 - Ordering tests was easy	Order Entry Scenario #2 - Ordering tests was efficient	What would make ordering easier or more efficient for you?	Results Entry Scenario #1 - Entering results was easy	Results Entry Scenario #1 - Entering results was efficient	What would make entering results easier or more efficient for you?	Results Entry Scenario #2 - Entering results was easy	Results Entry Scenario #2 - Entering results was efficient	What would make entering results easier or more efficient for you?
Participant 1												
Participant 2												
Participant 3												
Participant 4												
Participant 5												
Participant 6												
Participant 7												
Participant 8												
Participant 9												
Participant 10												
Participant 11												

5. Post-Test Questions											
Answer to following questions	I think that I would like to use OpenELIS frequently	I found OpenELIS unnecessarily complex	I thought OpenELIS was easy to use	I think that I would need the support of a technical person to be able to use OpenELIS	I found the various functions of OpenELIS were well integrated	I thought there was too much inconsistency with OpenELIS	I would imagine that most people would learn to use OpenELIS very quickly	I found OpenELIS to be very cumbersome to use	I felt very confident using OpenELIS	I need to learn a lot of things before I could get going with OpenELIS	Any other comment or feedback
Participant 1											
Participant 2											
Participant 3											
Participant 4											
Participant 5											
Participant 6											
Participant 7											
Participant 8											
Participant 9											
Participant 10											
Participant 11											