

# Software User Manual

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MALARIA SLIDE BANK MANAGEMENT SOFTWARE – V.1.0.0

ETHIOPIAN PUBLIC HEALTH INSTITUE – EPHI

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# 1 INTRODUCTION

The software described in this manual is intended to be used in the Ethiopian Public Health Institute (EPHI) Malaria slide bank database automation project by EPHI.

While every requirement has been taken in the development of the software and in the preparation of this documentation, MDTA/ICAP assumes no responsibility for errors or omissions, or for damage resulting from the use of the software or of the information contained herein.

## 1.1 Overview

This document is the User Manual of the Malaria Slide Bank Management Software (MSBMS).

It is intended to provide all the necessary information to use this software to manage the slide bank archive, slide, donor, check-in/checkout, replacement, exchange and other slide related information on standalone workstation PC/s.

In addition to this **Introduction** section, this manual contains four major sections:

- **User's Guide**, included in this document describing the functionality provided by the software, including examples of utilization.
- **Reference**, describing all the functions, commands and tools available to the applications and the application developers.
- **Installation Guide**, describing how to install and make the software ready to be used. This section has been moved into a dedicated manual covering the full Malaria Slide Bank Database Software installation.
- **Error Messages and Recovery**, provides a list of errors and diagnostic messages and possible recovery actions.

## 1.2 SCOPE

This manual describes the release of the Malaria Slide Bank Database Software v1.0.0.

## 1.3 REFERENCE DOCUMENTS

The following documents are referenced in this document and provide additional information:

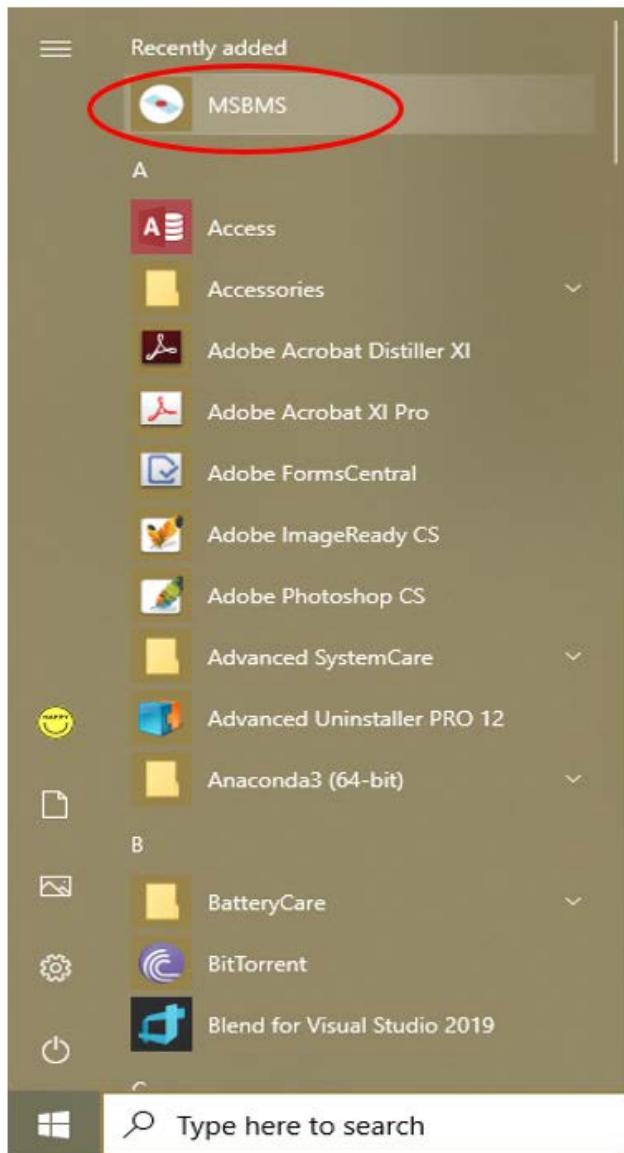
## 1.1 Overview of Software

This manual describes the MSBMS software functionalities implemented as per the requirements collected and finalized since Dec 1/2020 with frequent review of EPHI's team.

The software has the following Major Modules/Components:

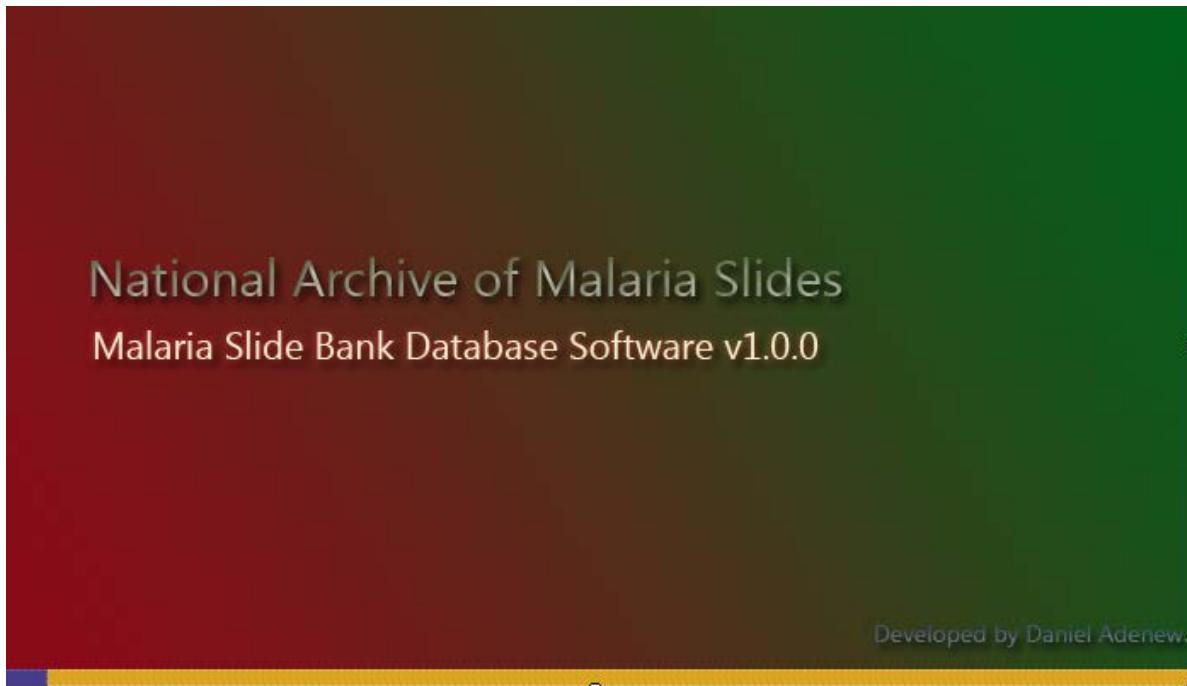


### 1.1.1 Starting Application from Start Menu



- ✓ Click on  MSBMS –icon to launch application
- ✓ Or Type “**MSBMS**” on search bar

- Application Shows a starting window



System initializes, checks for the necessary environment setup and show login screen.

- ✓ Check SQL server installation
- ✓ Connect to SQL for local data storage
- ✓ .NET Framework 4.7.X
- ✓ Windows 10 latest SP
- ✓ Initializes default country of origin data to EPHI as new contact
- ✓ Loads login forms

### 1.1.2 Login to application

To operate the functionality of SBMS software login is required. Login or authentication is using Username and Password. The authentication details must be created by a super admin of the Database Administrator prior using the software.

**N.B No authentication is needed to run the software; to perform action is.**

The following screen will appear under a normal opening of the SBMS software: enter correct login details to authenticate.



Figure 1: login screen

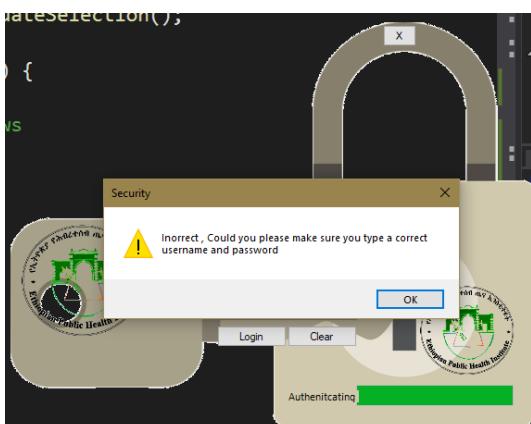
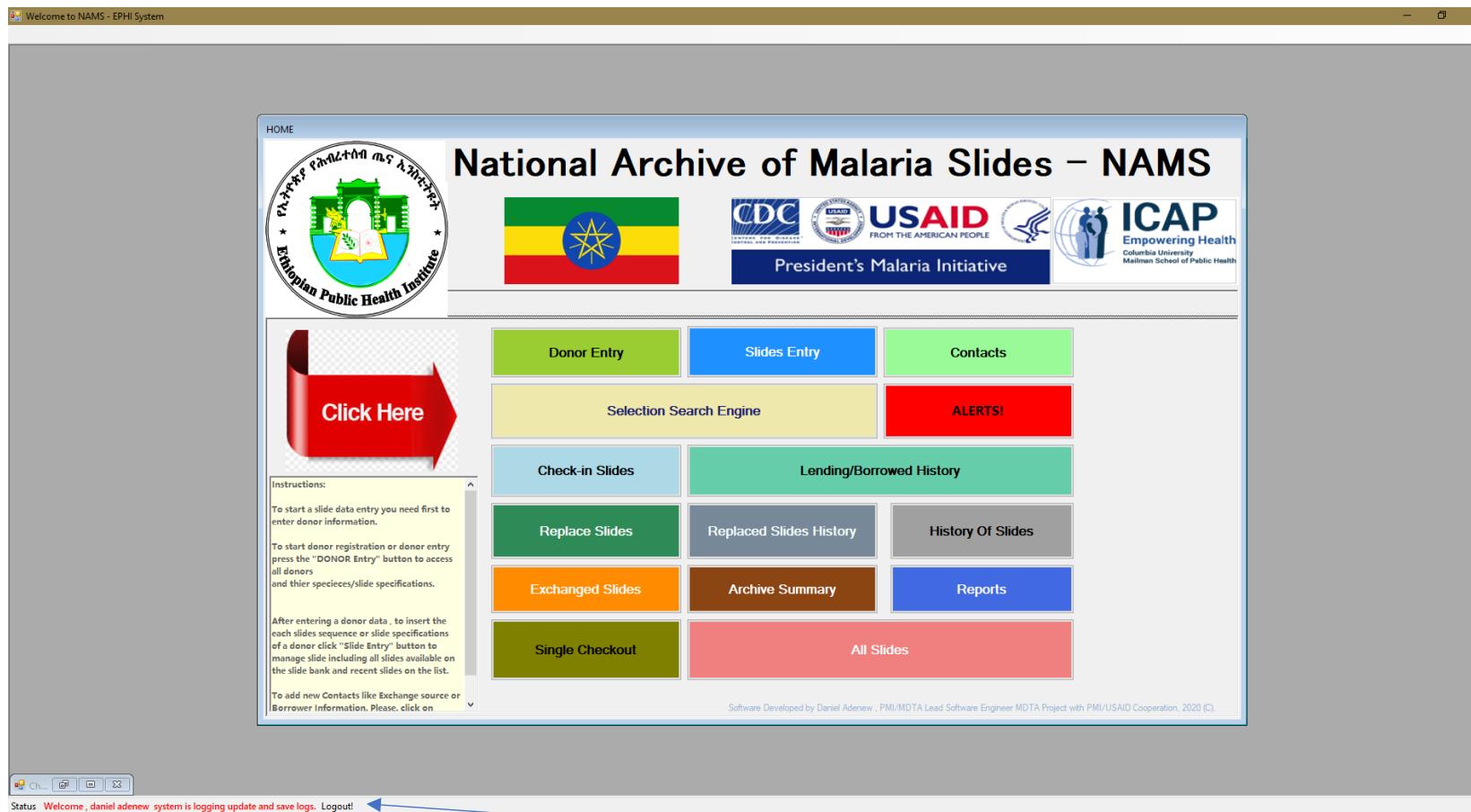


Figure 2: Login authentication wrong details entered

## 1.1.1 Applications Start Menu

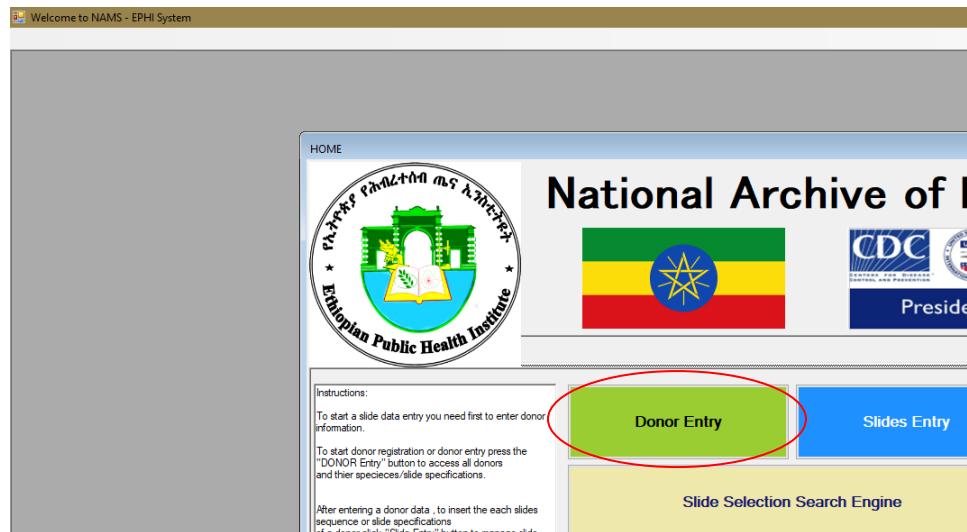
After a successful Login. The **MSBMS** software show the following start menu.



You can logout the system and close the application safely here, by clicking [Logout!](#) button

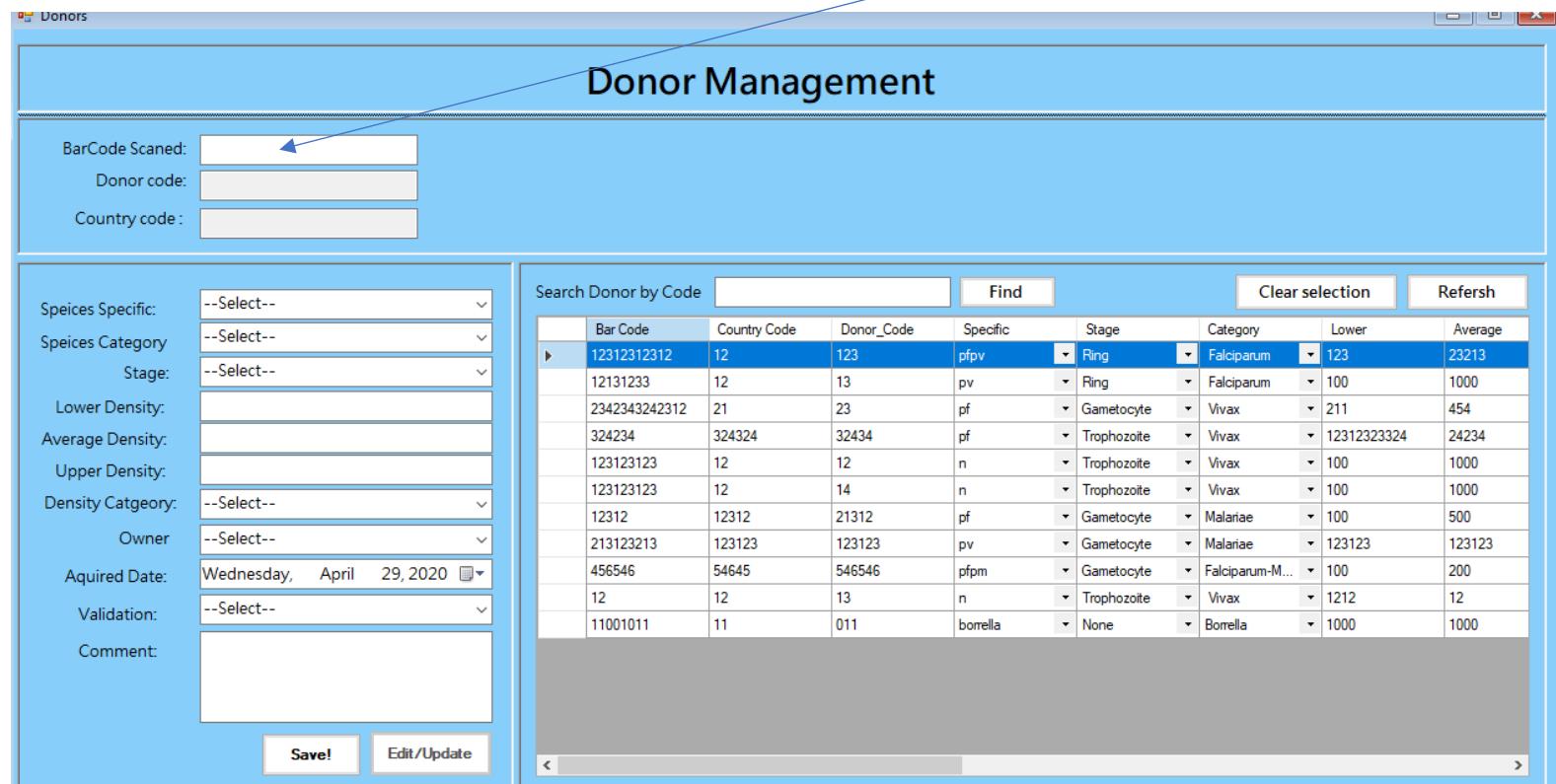
## 1.1.2 Donor Information

To start donor information management module. Press "**Donor Entry**" as indicated below.



- **Donor Information module has the following major logical actions in addition to other minor/supportive features:**
  1. Donor Information Registration
  2. Validation for duplicate donor code within a same country code
  3. Input Validation
  4. Edit Donor Information after save
  5. Search Donor – using donor code

- ✓ To start donor registration please enter the barcode here => **Barcode Scanned:** and press “Enter” on



The screenshot shows the 'Donor Management' window. At the top left, there are three input fields: 'BarCode Scanned:' (highlighted with a blue arrow), 'Donor code:', and 'Country code:'. On the right side, there is a search grid titled 'Search Donor by Code' with columns for Bar Code, Country Code, Donor\_Code, Specific, Stage, Category, Lower, and Average. The grid contains several rows of donor data. At the bottom left, there are 'Save!' and 'Edit/Update' buttons.

Bar Code	Country Code	Donor_Code	Specific	Stage	Category	Lower	Average
12312312312	12	123	pfpv	Ring	Falciparum	123	23213
12131233	12	13	pv	Ring	Falciparum	100	1000
2342343242312	21	23	pf	Gametocyte	Vivax	211	454
324234	324324	32434	pf	Trophozoite	Vivax	12312323324	24234
123123123	12	12	n	Trophozoite	Vivax	100	1000
123123123	12	14	n	Trophozoite	Vivax	100	1000
12312	12312	21312	pf	Gametocyte	Malariae	100	500
213123213	123123	123123	pv	Gametocyte	Malariae	123123	123123
456546	54645	546546	pfpv	Gametocyte	Falciparum-M...	100	200
12	12	13	n	Trophozoite	Vivax	1212	12
11001011	11	011	borella	None	Borella	1000	1000

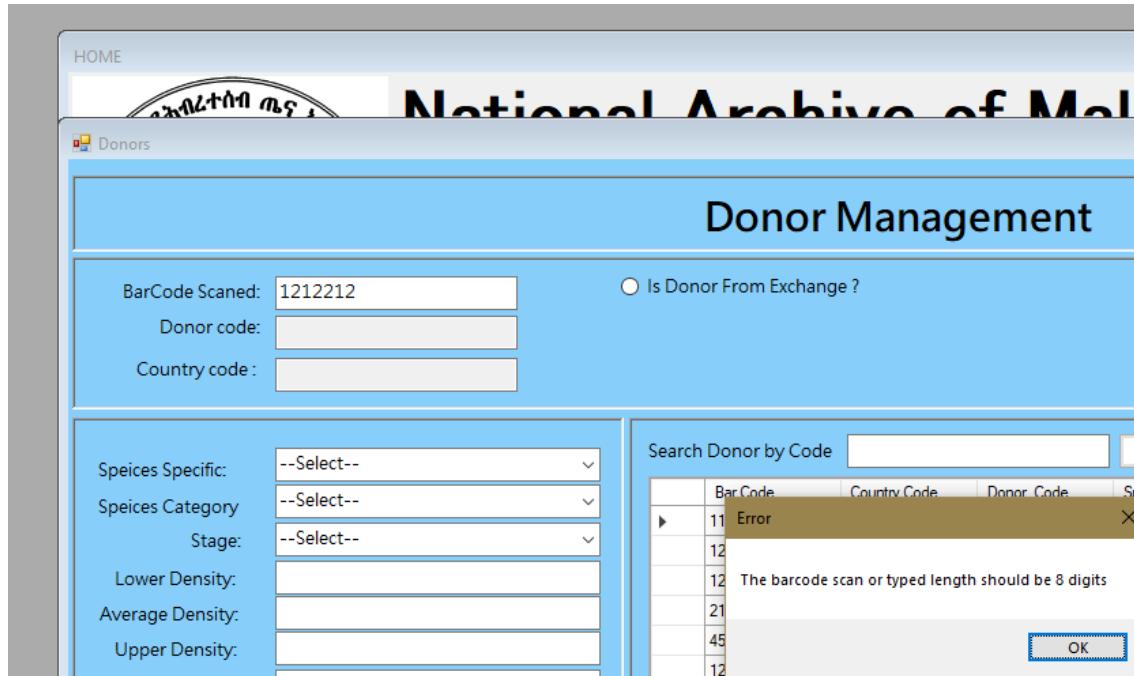
your keyboard!

- Next: Start filling the initial Donor Identification.

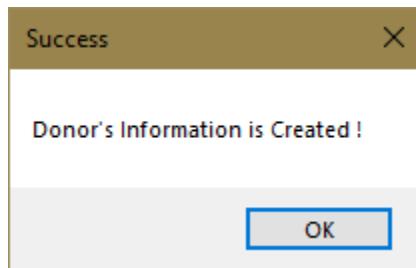
**Requirements :**

1. Must scan or enter barcode in the following format **Country Code-DSDSDS**
2. Enter the other species related details and press “Save”
3. If duplicate system will report – “Duplicate Donor ID” if not system will show donor saved message box.

**If you Enter less than 8-Digit for barcode system will show you Error Message as shown below.**



After a successfully registering a donor Information the following message will be displayed and new donor is added to the list on the right of the edit/update screen.



Donor Barcode i= 12121233 after saved it is shown on the right screen highlighted in blue as shown below.

A screenshot of a Windows application window titled "Donor Management". On the left, there is a sidebar with various dropdown filters and input fields. On the right, there is a large table displaying donor data. A red oval highlights the search bar and the "Find" button above the table. Another red oval highlights the first row of the table, which corresponds to the donor barcode 12121233. The table has columns for Bar Code, Country Code, Donor\_Code, Specific, Stage, Category, Lower, and Average. The highlighted row shows the barcode 12121233, country code 12, donor code 113, specific pfpv, stage Ring, category Falciparum-Vi., lower 122, and average 1222.

Bar Code	Country Code	Donor_Code	Specific	Stage	Category	Lower	Average
12121233	12	113	pfpv	Ring	Falciparum-Vi.	122	1222
11001011	11	011	borella	None	Borella	1000	1000
12	12	13	n	Trophozoite	Vivax	1212	12
12312	12312	21312	pf	Gametocyte	Malariae	100	500
213123213	123123	123123	pv	Gametocyte	Malanae	123123	123123
456546	54645	546546	pfpv	Gametocyte	Falciparum-M...	100	200
12312312312	12	123	pfpv	Ring	Falciparum	123	23213
12131233	12	13	pv	Ring	Falciparum	100	1000
2342343242312	21	23	pf	Gametocyte	Vivax	211	454
324234	324324	32434	pf	Trophozoite	Vivax	12312323324	24234
123123123	12	12	n	Trophozoite	Vivax	100	1000
123123123	12	14	n	Trophozoite	Vivax	100	1000

**Scrolling the left data grid view revels more columns and data element fields as shown below.**

The screenshot shows the 'Donors' application window titled 'Donor Management'. On the left side, there is a form with various dropdown menus and input fields:

- Barcode Scanned: [Text Box]
- Is Donor From Exchange? [Radio Button]
- Donor code: [Text Box]
- Country code: [Text Box]
- Species Specific: --Select--
- Species Category: --Select--
- Stage: --Select--
- Lower Density:
- Average Density:
- Upper Density:
- Density Category: --Select--
- Owner: --Select--
- Acquired Date: Wednesday, May 6, 2020
- Validation: --Select--
- Comment: [Text Area]

At the bottom left of the left panel are two buttons: 'Save!' and 'Edit/Update'.

On the right side, there is a data grid titled 'Search Donor by Code' with the following columns:

Created?	CountryOfOrigin	isExchange	Created	Updated	CreatedDate	LastUpdatedDate	Comment
Certifie...	Ethiopia	<input type="checkbox"/>	Full name=daniel...	5/6/2020 5:49 PM	5/6/2020 5:49 PM	Manual Preparation	
tic Rea...	Ethiopia	<input type="checkbox"/>	Full name=daniel...	4/29/2020 3:08 ...	4/29/2020 3:08 ...	Save error fixed ...	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	1/9/2020	1/1/1900	saadsa	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/26/2019	1/11/2020	123123123	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/26/2019	1/1/1900	12312312312	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/26/2019	1/1/1900	TEST with Wend...	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/24/2019	1/1/1900	HELP MAN	
Certifie...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/24/2019	12/25/2019	Updated by WHO	
Ctic Rea...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/24/2019	1/9/2020	update	
ng Vali...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	Test User	12/24/2019	12/25/2019	
Ctic Rea...	Ethiopia	<input type="checkbox"/>	Daniel Adenew, ...	12/24/2019	1/26/2020	btn reload click e...	
Ctic Rea...	Ethiopia	<input checked="" type="checkbox"/>	Daniel Adenew, ...	12/24/2019	1/13/2020	Hello Fele	

Below the data grid are scroll arrows: < and >.

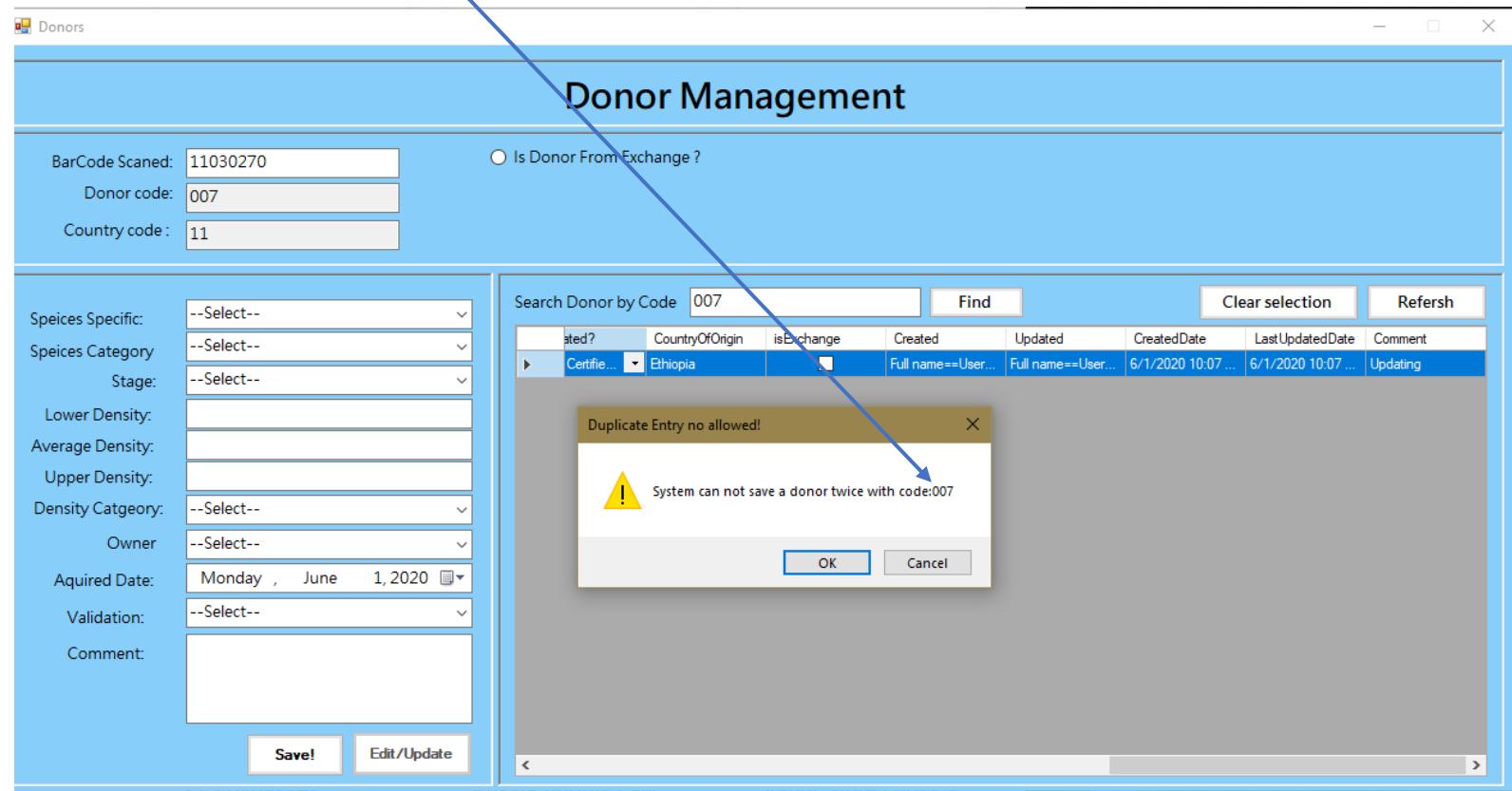
**Scroll button to show record details e.g. created date, created by etc.**

Select any record on data grid view to edit/update it. The below section discusses how edit/update a donor information.

## ➤ Preventing Duplicate Donor Record Saving

e.g. **11030270** is a donor with code **007**

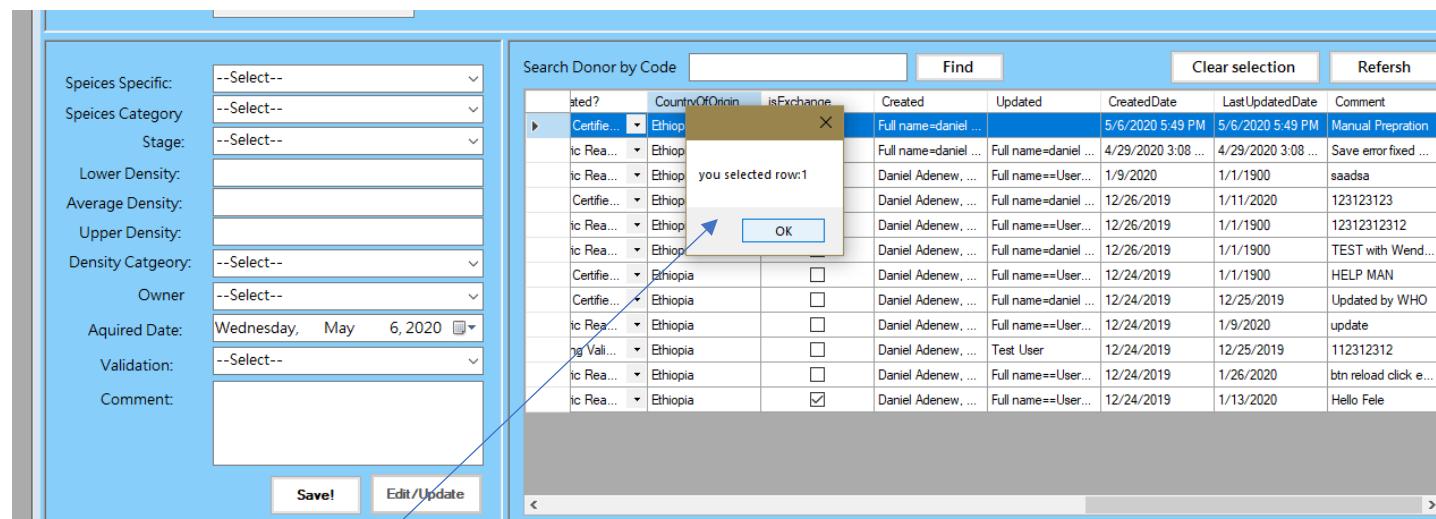
If there is an existing donor with the same code registered before. The system will show donor is duplicate warning message and will not save any record if entered.



Press "Ok" system clears the input for Barcode Scanned for NEXT entry.

➤ **Donor Information Update has the following major logical actions in addition to other minor/supportive features:**

1. First you have to select a donor data from the data grid list of records.
2. You have to change or edit/update some data values e.g. may be species category ..etc.
3. Press "**Edit/Update**" Button when you are done, "Save" button will be offline this time because it is new record.
4. System validate the edit. Checks for discrepancies or unselected or empty values if any
5. When correct the system shows update is done successfully with message.
6. Record update is reflected spontaneously and displayed on the list data grid view.



System showing selected row of a record during a record is selected for edit/update of donor info.

- The selected data from row 1 as show in this example will be loaded in individual data elements for edit.

The screenshot shows the 'Donor Management' application window. On the left, there is a form with various input fields and dropdown menus. A red arrow points from the 'Species Specific' dropdown (set to 'pfpv') to a grid of search results. Another red arrow points from the 'Species Category' dropdown (set to 'Falciparum-Vivax Mix') to the same grid. The search results grid contains 15 rows of donor data, with the first row highlighted in blue. The columns in the grid are: ID, Certified?, CountryOfOrigin, isExchange, Created, Updated, CreatedDate, LastUpdatedDate, and Comment. The first row's comment field contains the text 'Manual Preparation'. At the bottom of the form, there are 'Save!' and 'Edit/Update' buttons, with the 'Edit/Update' button being highlighted by a blue arrow.

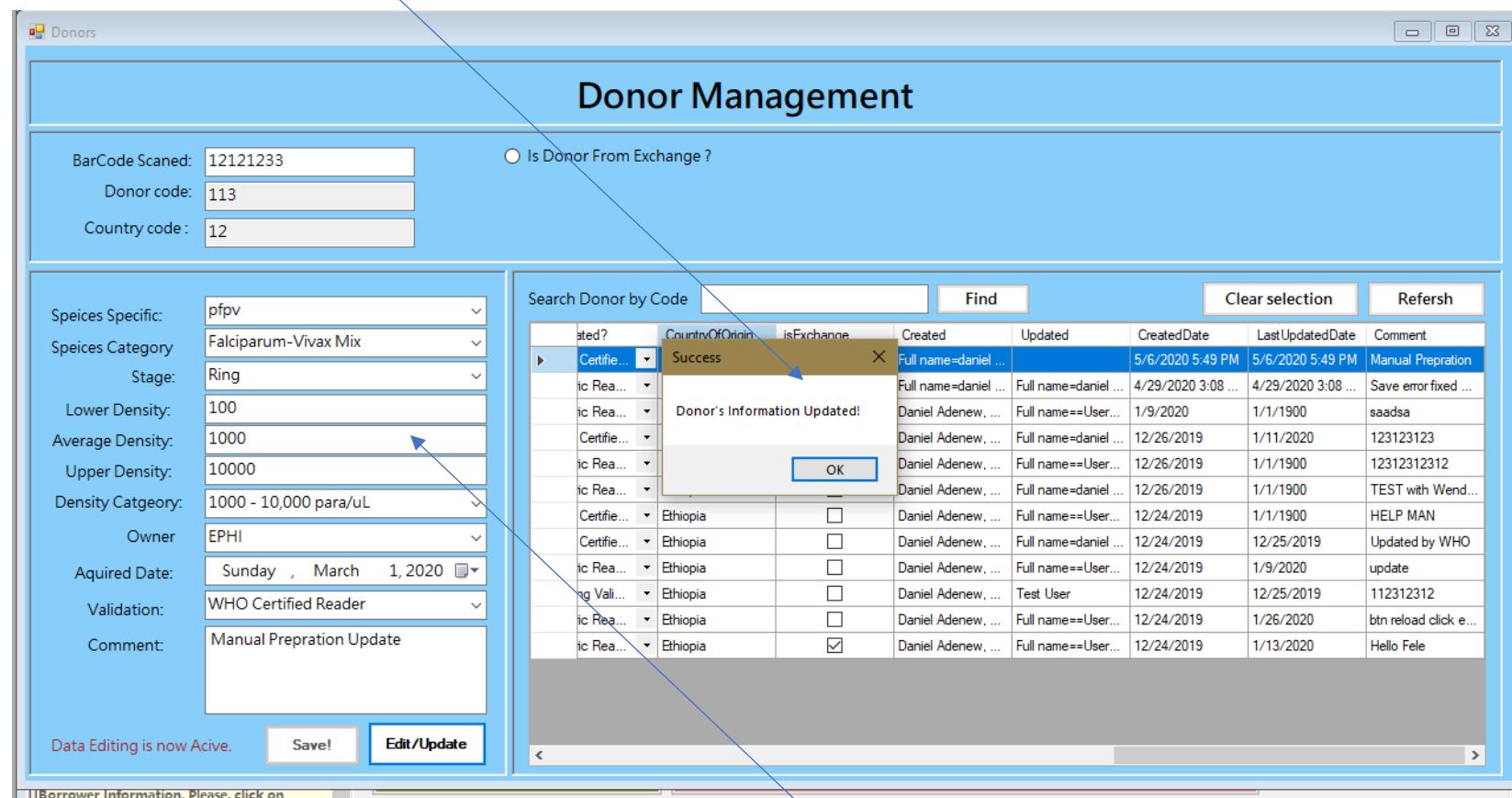
ID	Certified?	CountryOfOrigin	isExchange	Created	Updated	CreatedDate	LastUpdatedDate	Comment
1	Certified	Ethiopia	False	Full name=daniel...	Full name=daniel...	5/6/2020 5:49 PM	5/6/2020 5:49 PM	Manual Preparation
2	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	4/29/2020 3:08 ...	4/29/2020 3:08 ...	Save error fixed ...
3	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	1/9/2020	1/1/1900	saadsa
4	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/26/2019	1/11/2020	123123123
5	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/26/2019	1/1/1900	12312312312
6	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/26/2019	1/1/1900	TEST with Wend...
7	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/1/1900	HELP MAN
8	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	12/25/2019	Updated by WHO
9	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/9/2020	update
10	Validating	Ethiopia	False	Daniel Adenew...	Test User	12/24/2019	12/25/2019	112312312
11	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/26/2020	btn reload click e...
12	Certified	Ethiopia	True	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/13/2020	Hello Fele
13	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/13/2020	Test User
14	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/13/2020	Test User
15	Certified	Ethiopia	False	Daniel Adenew...	Daniel Adenew...	12/24/2019	1/13/2020	Test User

The text boxes data ,combo box , select box are now open for edit for the editing user.

Press "EDIT/Update" button now when you done with editing.

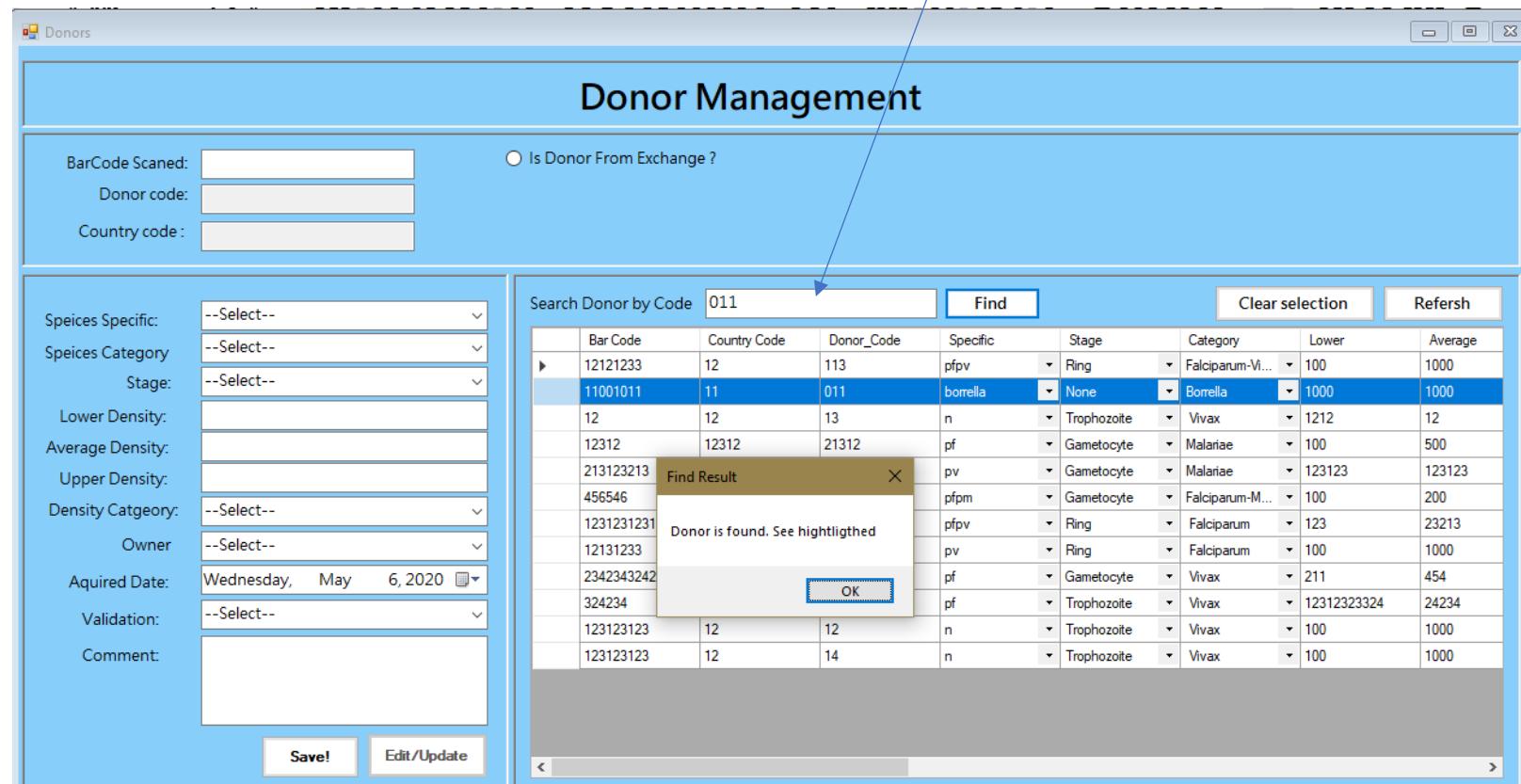
When “Edit/Update” button pressed, and if information is edited correctly and no discrepancies found.

System show a **confirmation message** that the record has been updated successfully as follows.



Updated record data in this example are *Lower , Average, Upper Density values*.

- **Searching a Donor by donor code** can be done by entering the **donor code** into the search by donor code text box and pressing find button. When system searches and found a donor as per the code in the database. It shows and highlights in blue as follow.

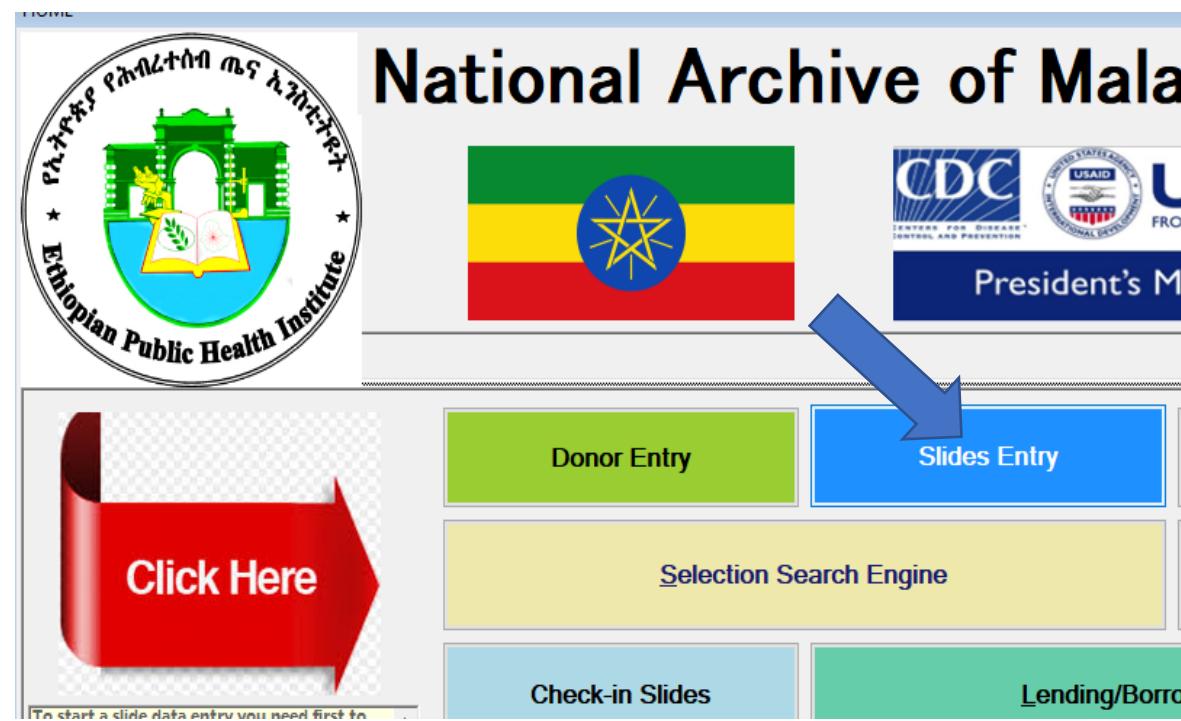


The screenshot shows the 'Donor Management' application window. On the left, there are input fields for 'BarCode Scanned:' (empty), 'Is Donor From Exchange?' (radio button), 'Donor code:' (containing '011'), 'Country code:' (empty), and several dropdown filters for species, category, stage, density, and owner. At the bottom left are 'Save!' and 'Edit/Update' buttons. On the right, a search results grid displays donor data. A modal dialog box titled 'Find Result' with the message 'Donor is found. See highlighted' and an 'OK' button is overlaid on the grid. An arrow from the text above points to the 'Donor code:' field.

Search Donor by Code		011	Find	Clear selection		Refresh			
		Bar Code	Country Code	Donor_Code	Specific	Stage	Category	Lower	Average
▶		12121233	12	113	pfpv	Ring	Falciparum-Vi...	100	1000
		11001011	11	011	boirella	None	Bomella	1000	1000
		12	12	13	n	Trophozoite	Vivax	1212	12
		12312	12312	21312	pf	Gametocyte	Malariae	100	500
		213123213	Find Result		pv	Gametocyte	Malariae	123123	123123
		456546			pfpv	Gametocyte	Falciparum-M...	100	200
		1231231231			pfpm	Ring	Falciparum	123	23213
		12131233			pfpv	Ring	Falciparum	100	1000
		2342343242			pv	Ring	Falciparum	211	454
		324234			pf	Gametocyte	Vivax	12312323324	24234
		123123123			pf	Trophozoite	Vivax	100	1000
		123123123			n	Trophozoite	Vivax	100	1000

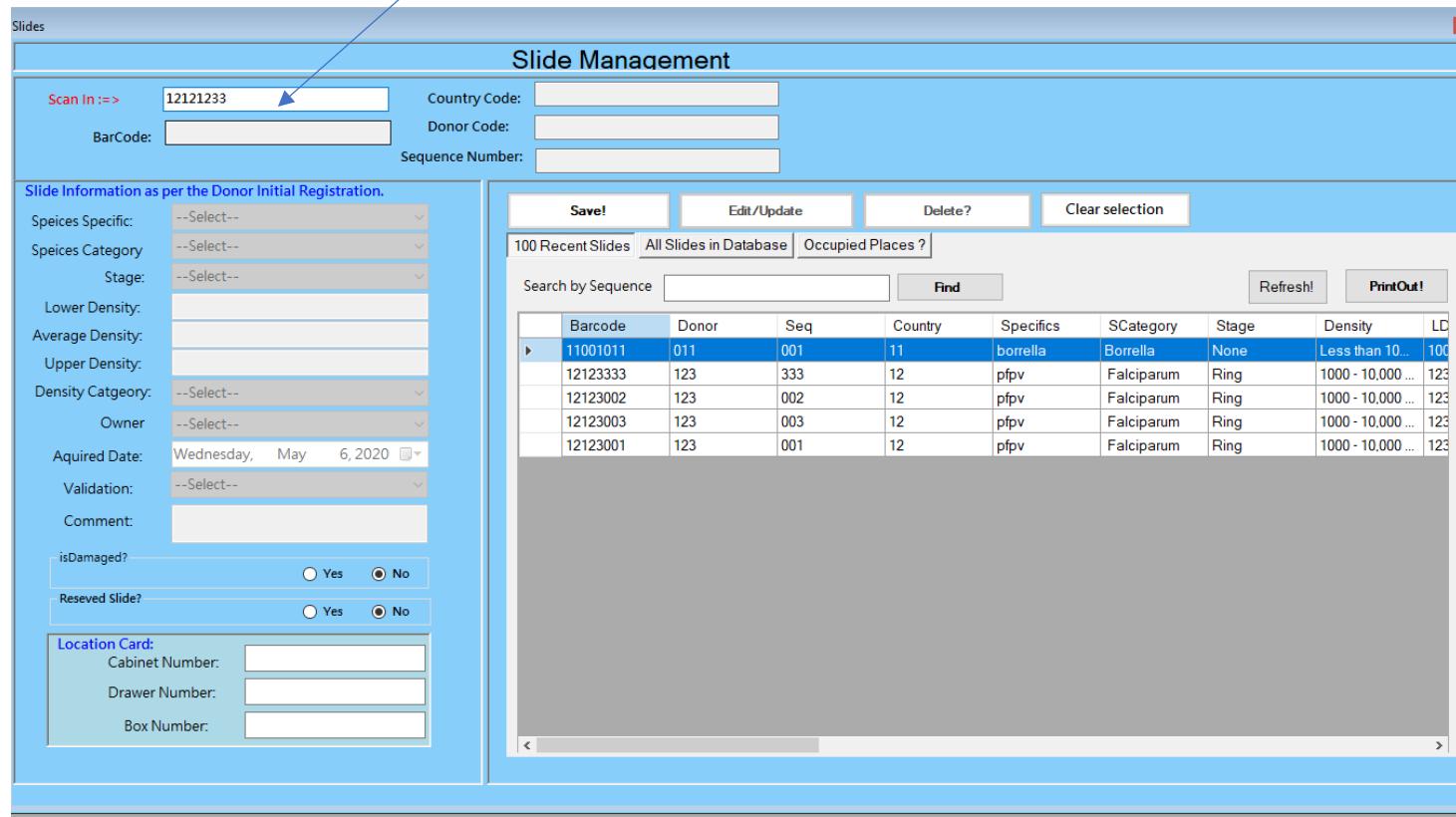
### 1.1.3 Slides Information

After saving donor information, comes registering individual slide information for a particular donor code, simply a donor. To do launch the slide information/entry from application menu as follows.



➤ **Add new Slide Information has the following major logical actions in addition to other minor/supportive features:**

1. First you have to enter the **barcode of slide in Barcode input box or scan using barcode reader** by placing the computer mouse on the input box.



The screenshot shows the 'Slide Management' window with the following details:

**Top Input Fields:**

- Scan In :=>
- Country Code:
- Donor Code:
- Barcode:
- Sequence Number:

**Left Panel: Slide Information as per the Donor Initial Registration.**

- Species Specific: --Select--
- Species Category: --Select--
- Stage: --Select--
- Lower Density:
- Average Density:
- Upper Density:
- Density Category: --Select--
- Owner: --Select--
- Acquired Date: Wednesday, May 6, 2020
- Validation: --Select--
- Comment:
- isDamaged?  Yes  No
- Reseved Slide?  Yes  No
- Location Card:**
  - Cabinet Number:
  - Drawer Number:
  - Box Number:

**Right Panel: Data Grid View**

Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
11001011	011	001	11	borrella	Borrealla	None	Less than 10...	100
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123

Buttons at the top right: Save!, Edit/Update, Delete?, Clear selection, Refresh!, PrintOut!

2. Press **Enter key on your keyboard** to fetch the slides specification that was formerly saved with a when registering a donor. Since, all slides under same donor always get information as per the **existing** donor.

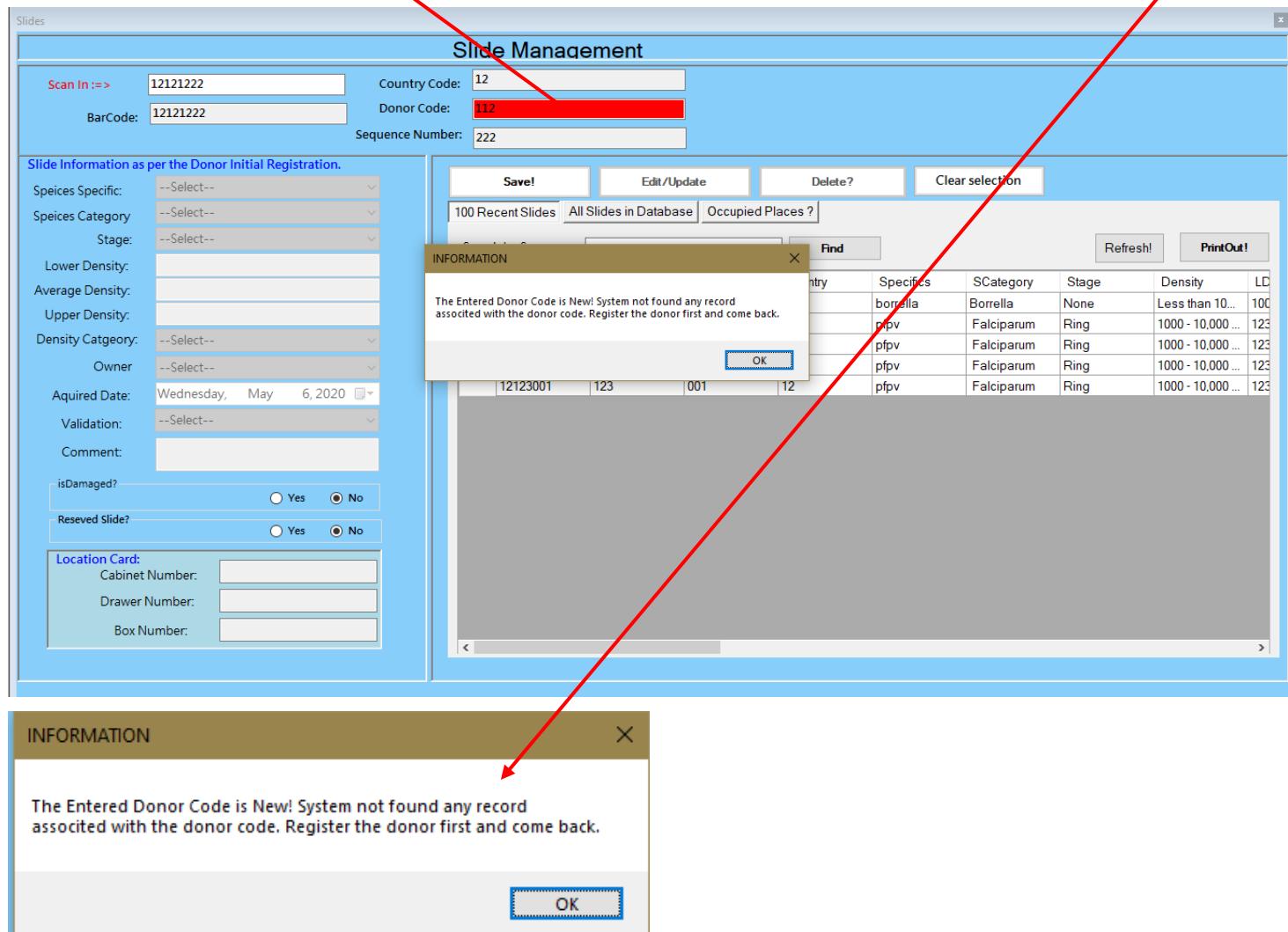
The screenshot shows the 'Slide Management' window. On the left, there's a form for entering slide details. The 'Donor Code' field contains '113'. A red arrow points from this field to a grid on the right containing donor information. The grid has columns: Barcode, Donor, Seq, Country, Specifics, SCategory, Stage, Density, and LD. It lists several rows of data, with the first row matching the donor code '113'.

Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
11001011	011	001	11	borrella	Borrella	None	Less than 10...	100
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000...	123
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000...	123
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000...	123
12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000...	123

This information is automatically fetched from existing donor information as per the donor code.

- N.B before registering slides a Donor has to be registered first.

3. If system could not find the donor by the bar code's donor id, it shows donor not found message, which will result any record not to be saved.



4. Pressing "Save" button while there is red flag on. The system automatically disables any input data filed to be entered/disable to prevent **invalid data**. So, no record adding will happen at this time.

The screenshot shows the 'Slide Management' application interface. At the top, there are input fields for 'Scan In :>' (23232323), 'Country Code' (23), 'BarCode:' (23232323), 'Donor Code' (222, highlighted in red), and 'Sequence Number' (333). Below these, a section titled 'Slide Information as per the Donor Initial Registration.' contains various dropdown menus and input fields. A red arrow points from the 'isDamaged?' field (radio buttons for Yes or No) down to the 'Location Card' section, which includes fields for Cabinet Number, Drawer Number, and Box Number. Another red arrow points from the 'Save!' button in the toolbar to a validation dialog box. This dialog box, titled 'Validation', contains a yellow warning icon and the message 'Location of Slide data is empty or not valid. Please , correct'. The 'OK' button is visible at the bottom of the dialog.

	Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
11001011	011	001	11	borrella	Borrella	None	Less than 10...	100	
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123	
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123	
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123	
▶ 12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123	

5. If donor code is valid , existing and slide specification is displayed with green color flag on as show in step #3 above. The system will accept data to be entered for file **isDamaged, isReserved , Location (Cabinet,Drawer,Box)** input fields as shown in figure below.

**Slide Management**

Scan In :=> <input type="text" value="12121233"/>	Country Code: <input type="text" value="12"/>
BarCode: <input type="text" value="12121233"/>	Donor Code: <input type="text" value="113"/>
Sequence Number: <input type="text" value="223"/>	
<b>Slide Information as per the Donor Initial Registration.</b>	
Species Specific: <input type="text" value="pfpv"/>	Species Category: <input type="text" value="Falciparum-Vivax Mix"/>
Stage: <input type="text" value="Ring"/>	Lower Density: <input type="text" value="100"/>
Average Density: <input type="text" value="1000"/>	Upper Density: <input type="text" value="10000"/>
Density Category: <input type="text" value="1000 - 10,000 para/uL"/>	Owner: <input type="text" value="EPHI"/>
Aquired Date: <input type="text" value="Sunday , March 1, 2020"/>	Validation: <input type="text" value="WHO Certified Reader"/>
Comment: <input type="text" value="Manual Preparation Update"/>	
isDamaged? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Reseveed Slide? <input type="radio"/> Yes <input checked="" type="radio"/> No	
<b>Location Card:</b>	
Cabinet Number: <input type="text" value="1"/>	Drawer Number: <input type="text" value="1"/>
Box Number: <input type="text" value="4"/>	

**Save!**   **Edit/Update**   **Delete?**   **Clear selection**

[100 Recent Slides](#) [All Slides in Database](#) [Occupied Places ?](#)

Search by Sequence  **Find** **Refresh!** **PrintOut!**

	Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
▶	11001011	011	001	11	borella	Borella	None	Less than 10...	100
	12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123

Press "**Save**" now to save the slide in the unoccupied location.

**N.B A this stage another validation awaits that if you enter Location data which is occupied system will report to you if it is already used and you need to change.**

6. User are required to check if the location for the slide is occupied or not by accessing the Occupied Location button on the slide page form as shown below.

- ❖ Other wise system will show **Validation Message** as follows to prevent duplicate slide location data saving or unwanted override of location which will make Slide Bank Unstable.

The screenshot shows the 'Slide Management' screen of the NAMS - EPHI System. On the left, there's a form for entering slide details like Scan In, BarCode, Country Code, Donor Code, and Sequence Number. On the right, a table lists recent slides with columns for Barcode, Donor, Seq, Country, Specifics, SCategory, Stage, Density, and LC. A modal dialog box titled 'Duplicate Location' appears in the center, containing a warning icon and the text: 'Slide exist at [Cabinet = 1, Drawer = 1, Box = 3]. Please check for unoccupied slide location.' There are 'OK' and 'Cancel' buttons at the bottom of the dialog.

Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LC
11001011	011	001	11	borrella	Borrella	None	Less than 10...	100
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	12:
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	12:
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	12:
12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	12:

See below for more...

7. To check occupied and not occupied places press '**Occupied Places**' button as shown below.

The screenshot shows the 'Slide Management' screen of the NAMS - EPHI System. On the left, there is a form for entering slide information, including fields for Scan In, BarCode, Country Code, Donor Code, and Sequence Number. Below this is a section titled 'Slide Information as per the Donor Initial Registration' containing dropdown menus for Species Specific, Species Category, Stage, Lower Density, Average Density, Upper Density, Density Category, Owner, Acquired Date (set to Wednesday, May 6, 2020), Validation, Comment, isDamaged (with radio buttons for Yes and No), and Reseved Slide? (with radio buttons for Yes and No). There is also a 'Location Card' section with fields for Cabinet Number, Drawer Number, and Box Number. On the right, there is a grid table titled 'Occupied Places ?' with columns for Barcode, Donor, Country, Seq#, Cabinet, Drawer, Box, isDamaged, and isR. The table contains several rows of data. At the top of the right panel, there are buttons for Save!, Edit/Update, Delete?, Clear selection, 100 Recent Slides, All Slides in Database, and Refresh!. A red arrow points to the 'Occupied Places ?' button in the top right corner of the main panel.

Barcode	Donor	Country	Seq#	Cabinet	Drawer	Box	isDamaged	isR
11001011	011	11	001	1	1	3	<input type="checkbox"/>	
12123002	123	12	002	12	12	12	<input type="checkbox"/>	
12123003	123	12	003	1	1	1	<input type="checkbox"/>	
12123001	123	12	001	1	1	2	<input type="checkbox"/>	
12123333	123	12	333	1	1	1	<input type="checkbox"/>	
12123343	123	12	343	1	1	4	<input checked="" type="checkbox"/>	

8. Change if Location is occupied for the slide you are saving if Duplicate Location Error message displayed and **press “Save” Button** again.

*You have now saved a slide information correctly. System will confirm success as show below and the new record will be seen on the left of data grid view as shown on the below figures.*

The screenshot shows the 'Slide Management' application interface. On the left, there's a form for entering slide details. On the right, there's a data grid showing a list of slides with various columns like Barcode, Donor, Country, Seq#, Cabinet, Drawer, Box, and isDamaged. A red arrow points from the text above to a 'Success' dialog box in the bottom right corner of the main window, which contains the message 'Slide's Information Saved !' and an 'OK' button.

Barcode	Donor	Country	Seq#	Cabinet	Drawer	Box	isDamaged	isR
11001011	011	11	001	1	1	3	<input type="checkbox"/>	
12123002	123	12	002	12	12	12	<input type="checkbox"/>	
12123003	123	12	003	1	1	1	<input type="checkbox"/>	
12123001	123	12	001	1	1	2	<input type="checkbox"/>	
12123333	123	12	333	1	1	1	<input type="checkbox"/>	
12123343	123	12	343	1	1	4	<input checked="" type="checkbox"/>	

9. System displaying the new record. Press the tab button “**100 recent slides**”. Here is our new record we inserted as per our previous entered slide information under **donor code 113/sequence 223**.

**N.B** The slide now has 223 sequence id as per the scanned bar code. If you scan a slide for donor 113 with a sequence 001 , you have use a barcode with the following format. E.g CD-DSDSDS => 12101011 which result in sequence code 001.

Welcome to NAMS - EPHI System - [Slides]

Slide Management

Scan In :=>		Country Code:	12
BarCode:	12121233	Donor Code:	113
		Sequence Number:	223

Slide Information as per the Donor Initial Registration.

Species Specific:	pfpv
Species Category:	Falciparum-Vivax Mix
Stage:	Ring
Lower Density:	100
Average Density:	1000
Upper Density:	10000
Density Category:	1000 - 10,000 para/uL
Owner:	EPHI
Aquired Date:	Sunday , March 1, 2020
Validation:	WHO Certified Reader
Comment:	Manual Preparation Update
isDamaged?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Reseved Slide?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Location Card:	Cabinet Number: 1 Drawer Number: 1 Box Number: 5

Save! Edit/Update Delete? Clear selection Editing Data: Click Edit/Update

	Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
>	12121233	113	223	12	pfpv	Falciparum-V...	Ring	1000 - 10,000 ...	100
	11001011	011	001	11	borrella	Borrelia	None	Less than 10...	100
	12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
	12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123

100 Recent Slides All Slides in Database Occupied Places ?

Search by Sequence  Find Refresh! PrintOut!

10. Scroll the data grid list view to see all records are entered correct? see below.

The screenshot shows the 'Slide Management' window with the following details:

- Top Panel:**
  - Scan In :=> [Text Box]
  - Country Code: 12
  - BarCode: 12121233
  - Donor Code: 113
  - Sequence Number: 223
- Left Panel (Slide Information):**
  - Species Specific: pfpv
  - Species Category: Falciparum-Vivax Mix
  - Stage: Ring
  - Lower Density: 100
  - Average Density: 1000
  - Upper Density: 10000
  - Density Category: 1000 - 10,000 para/uL
  - Owner: EPHI
  - Acquired Date: Sunday, March 1, 2020
  - Validation: WHO Certified Reader
  - Comment: Manual Preparation Update
  - isDamaged? (radio buttons: Yes, No) - No is selected
  - Reserved Slide? (radio buttons: Yes, No) - No is selected
  - Location Card:**
    - Cabinet Number: 1
    - Drawer Number: 1
    - Box Number: 5
- Right Panel (Data Grid):**
  - Buttons: Save!, Edit/Update (highlighted in blue), Delete?, Clear selection, Editing Data: Click Edit/Update
  - Links: 100 Recent Slides, All Slides in Database, Occupied Places?
  - Search Bar: Search by Sequence [Text Box], Find [Button]
  - Data Grid Headers: Cabinet#, Box#, Drawer#, ADate, Owner, Validation, Comment, Damaged?, Res
  - Data Grid Rows (7 total):
    - Cabinet# 5, Box# 1, Drawer# 1, ADate 3/1/2020 5:46..., Owner EPHI, Validation WHO Certi..., Comment Manual Prepr., Damaged? No
    - Cabinet# 3, Box# 1, Drawer# 1, ADate 4/28/2020 3:0..., Owner EPHI, Validation Generic R..., Comment Save error fix..., Damaged? No
    - Cabinet# 1, Box# 1, Drawer# 1, ADate 12/24/2019 10..., Owner EPHI, Validation WHO Certi..., Comment HELP MAN, Damaged? No
    - Cabinet# 12, Box# 12, Drawer# 12, ADate 12/24/2019 10..., Owner EPHI, Validation WHO Certi..., Comment HELP MAN, Damaged? No
    - Cabinet# 1, Box# 1, Drawer# 1, ADate 12/24/2019 10..., Owner EPHI, Validation WHO Certi..., Comment HELP MAN, Damaged? No
    - Cabinet# 2, Box# 1, Drawer# 1, ADate 12/24/2019 10..., Owner EPHI, Validation WHO Certi..., Comment HELP MAN, Damaged? No

To this point we have seen that how we can save/edit particular Donor Information its child Slides Information under it.

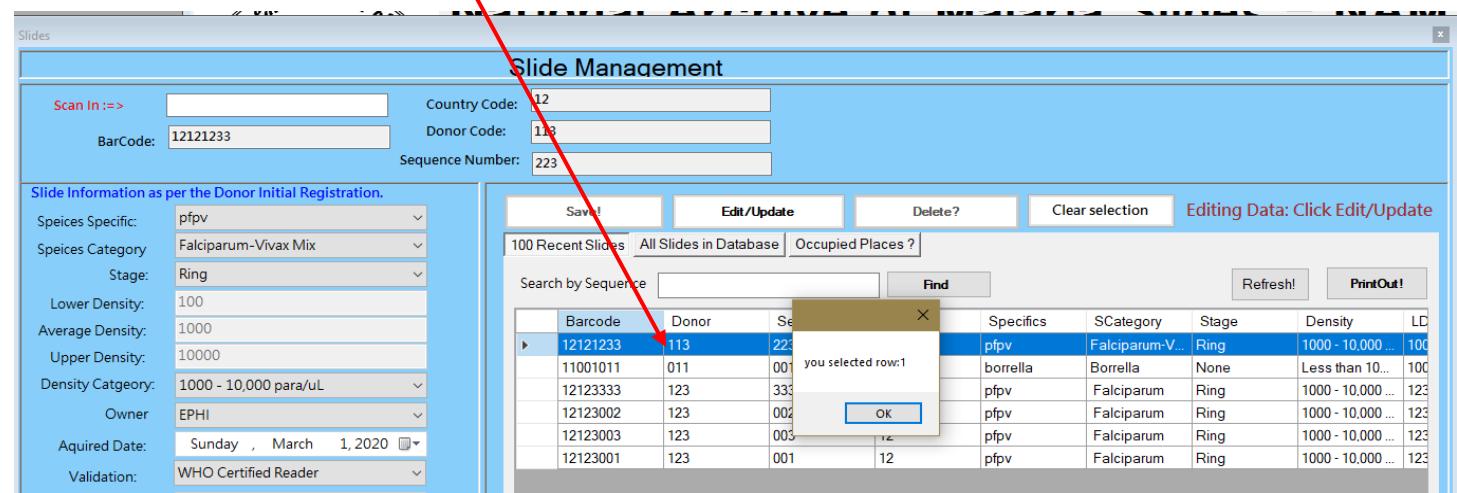
## ➤ Editing Slide Existing Slide Information

Next Section describes editing a slide information after save. We select the record we have saved before on above step.

1. You have **to select the slide** you would like to edit the information.

**N.B The following are the only editable slide information after save. The rest data elements are only edited by using Donor Information. To sound a logic that initial specification for all slide is based Donor's .**

- a. Is Reserved Status
- b. Is Damaged Status
- c. Location Data -> **Drawer, Cabinet and Box**



2. Now Edit some information after the selected slide is loaded on individual input data elements to the left.

In the following example Location Data (Box Number has been changed to “**6**” from “**5**”) and “**IsReserved**” data is selected to “**Yes**” by default all slides saved as not reserved.

**Slides**

### Slide Management

<b>Scan In :=&gt;</b> <input type="text"/>	<b>Country Code:</b> <input type="text" value="12"/>						
<b>BarCode:</b> <input type="text" value="12121233"/>	<b>Donor Code:</b> <input type="text" value="113"/>						
<b>Sequence Number:</b> <input type="text" value="223"/>							
<b>Slide Information as per the Donor Initial Registration.</b>							
<b>Species Specific:</b> <input type="text" value="pfpv"/>	<b>Species Category:</b> <input type="text" value="Falciparum-Vivax Mix"/>						
<b>Stage:</b> <input type="text" value="Ring"/>	<b>Lower Density:</b> <input type="text" value="100"/>						
<b>Average Density:</b> <input type="text" value="1000"/>	<b>Upper Density:</b> <input type="text" value="10000"/>						
<b>Density Category:</b> <input type="text" value="1000 - 10,000 para/uL"/>	<b>Owner:</b> <input type="text" value="EPHI"/>						
<b>Acquired Date:</b> <input type="text" value="Sunday , March 1, 2020"/>	<b>Validation:</b> <input type="text" value="WHO Certified Reader"/>						
<b>Comment:</b> <input type="text" value="Manual Preparation Update"/>							
<b>isDamaged?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No							
<b>Reserve Slide?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No							
<b>Location Card:</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Cabinet Number:</td> <td><input type="text" value="1"/></td> </tr> <tr> <td>Drawer Number:</td> <td><input type="text" value="1"/></td> </tr> <tr> <td>Box Number:</td> <td><input type="text" value="6"/></td> </tr> </table>		Cabinet Number:	<input type="text" value="1"/>	Drawer Number:	<input type="text" value="1"/>	Box Number:	<input type="text" value="6"/>
Cabinet Number:	<input type="text" value="1"/>						
Drawer Number:	<input type="text" value="1"/>						
Box Number:	<input type="text" value="6"/>						

Save! Edit/Update Delete? Clear selection Editing Data: Click Edit/Update

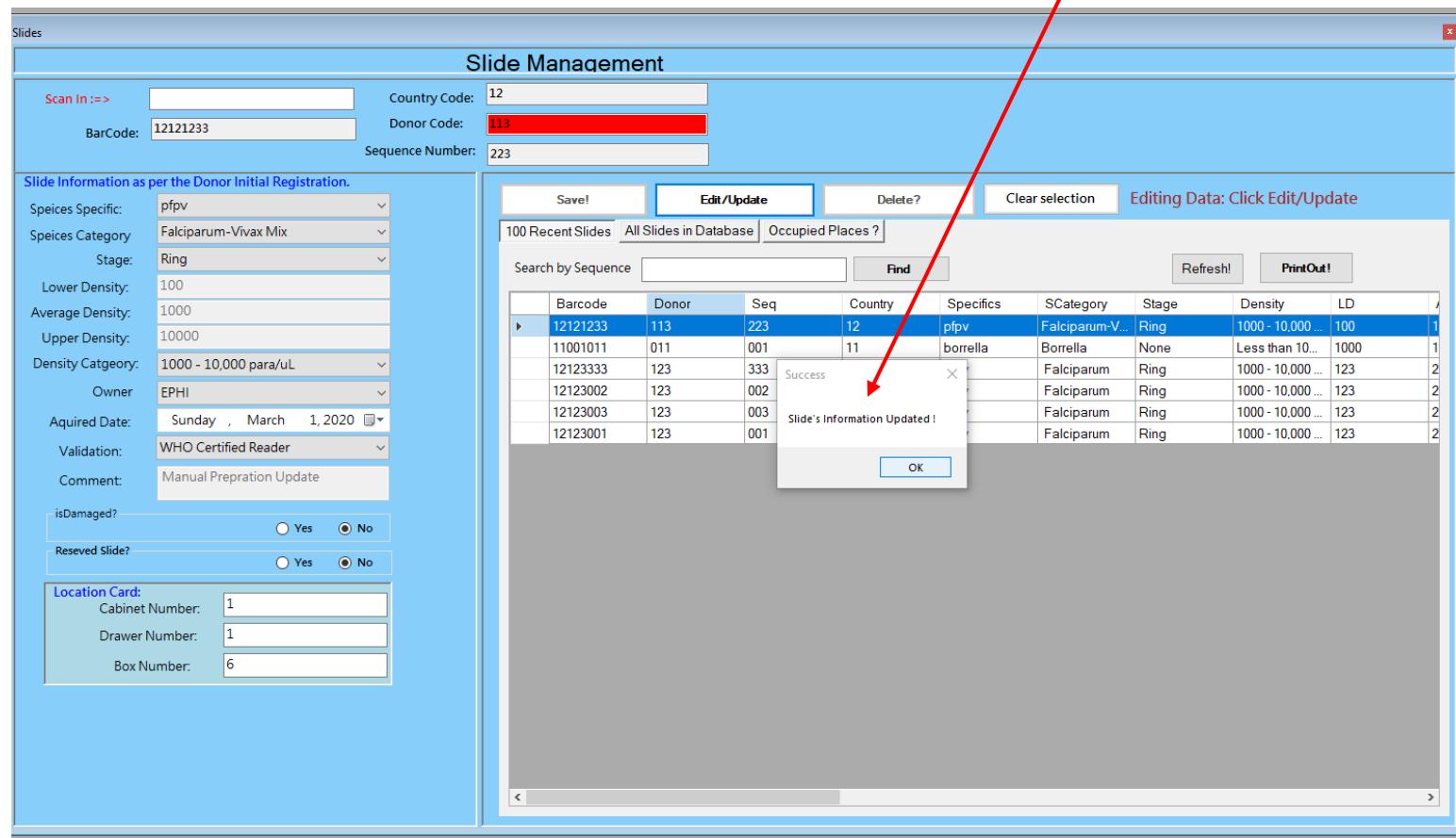
100 Recent Slides All Slides in Database Occupied Places ?

Search by Sequence  Find Refresh! PrintOut!

Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD
12121233	113	223	12	pfpv	Falciparum-V...	Ring	1000 - 10,000 ...	100
11001011	011	001	11	borrella	Borrella	None	Less than 10...	100
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123

3. Press “**Edit/Update**” button, when you are done. Slide information is now **successfully** updated. System shows confirmation message.

**N.B if the location you choose during edit or save of slide information system will show “Error” message. In this case Drawer 6 is not occupied, slide location is changed.**



## ➤ Recent slides information Views

As show on screen below , by default slide form page show the recent 100 slides which are entered , order by their date as this one of the request by EPHI , during requirement gathering.

The screenshot shows the 'Slide Management' screen of the NAMS - EPHI System. On the left, there is a form for entering slide details, including fields for Scan In, Country Code, BarCode, Donor Code, and Sequence Number. Below this is a section titled 'Slide Information as per the Donor Initial Registration' with dropdown menus for Species Specific, Species Category, Stage, Lower Density, Average Density, Upper Density, Density Category, Owner, Acquired Date, Validation, Comment, isDamaged?, and Reseved Slide?. There is also a 'Location Card' section with fields for Cabinet Number, Drawer Number, and Box Number. On the right, a large grid displays '100 Recent Slides'. The grid columns include Barcode, Donor, Seq, Country, Specifics, SCategory, Stage, Density, LD, and a status column. The first few rows of data are as follows:

Barcode	Donor	Seq	Country	Specifics	SCategory	Stage	Density	LD	Status
12121233	113	223	12	pfpv	Falciparum-V.	Ring	1000 - 10,000	100	1
11001011	011	001	11	borrella	Borrelia	None	Less than 10...	1000	1
12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000	123	2
12123002	123	002	12	pfpv	Falciparum	Ring	1000 - 10,000	123	2
12123003	123	003	12	pfpv	Falciparum	Ring	1000 - 10,000	123	2
12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000	123	2

## ➤ All Slides Information Views

As show on screen below, to see all slides including the recent once and all in the slide database (**damaged, reserved, borrowed , exchange slides....**) we use the Tab button “**All slide in Database**” to list.

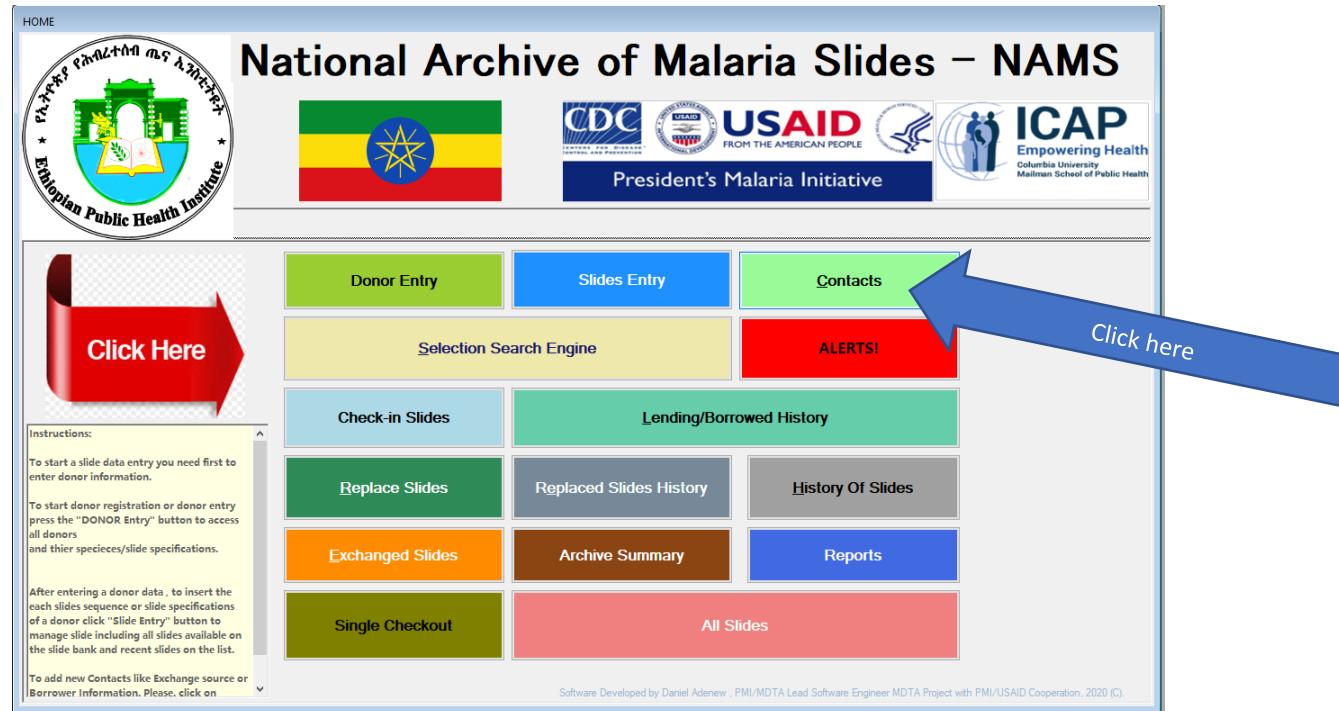
The screenshot shows the 'Slide Management' screen of the NAMS - EPHI System. On the left, there is a form for entering slide information, including fields for Scan In, Country Code, BarCode, Sequence Number, Species Specific, Species Category, Stage, Lower Density, Average Density, Upper Density, Density Category, Owner, Acquired Date, Validation, Comment, isDamaged? (radio buttons Yes/No), and Reserved Slide? (radio buttons Yes/No). Below this is a 'Location Card' section with fields for Cabinet Number, Drawer Number, and Box Number. On the right, there is a grid table titled 'Slide Management' with columns for bx#, ADate, Validation, comment, Damaged?, Reserved?, Borrowed?, Active?, UDate, and CD. The table contains several rows of data. At the top of the grid, there are buttons for Save!, Update, Delete?, Clear selection, and tabs for '100 Recent Slides', 'All Slides in Database' (which is highlighted with a red circle), and Occupied Places?. There are also buttons for Search By Donor, Find, Refresh!, and PrintOut!.

bx#	ADate	Validation	comment	Damaged?	Reserved?	Borrowed?	Active?	UDate	CD
12/24/2019 10...	WHO Certi...	HELP MAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/17/2020	1/17
12/24/2019 10...	WHO Certi...	HELP MAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/17/2020	1/17
12/24/2019 10...	WHO Certi...	HELP MAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/17/2020	1/17
12/24/2019 10...	WHO Certi...	HELP MAN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1/17/2020	1/21
12/24/2019 10...	WHO Certi...	HELP MAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2/11/2020 6:3...	2/11
4/28/2020 3:0...	Generic R...	Save error fix...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/29/2020 3:3...	4/29
3/1/2020 5:46 ...	WHO Certi...	Manual Prepr...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5/6/2020 7:36 ...	5/6

### 1.1.3 Contacts Information

To work with contacts first, we need to start the contact management form application from the central menu as shown below.

- The purpose and use for contacts form is to capture personal and organizational details before borrowing slides, and during slide exchanges.



After click a - Contact Management form will open for data entry and management.

## ➤ Adding /Editing and Deleting Contact

To register a new contact

1. You have enter the personal and organization details on the left of the form , on the input data elements and boxes.

e.g Full Name , Organization , Phone Number ...etc.

The screenshot shows a Windows application titled "Contacts Information Management". On the left, there is a form for entering contact information. The fields include:

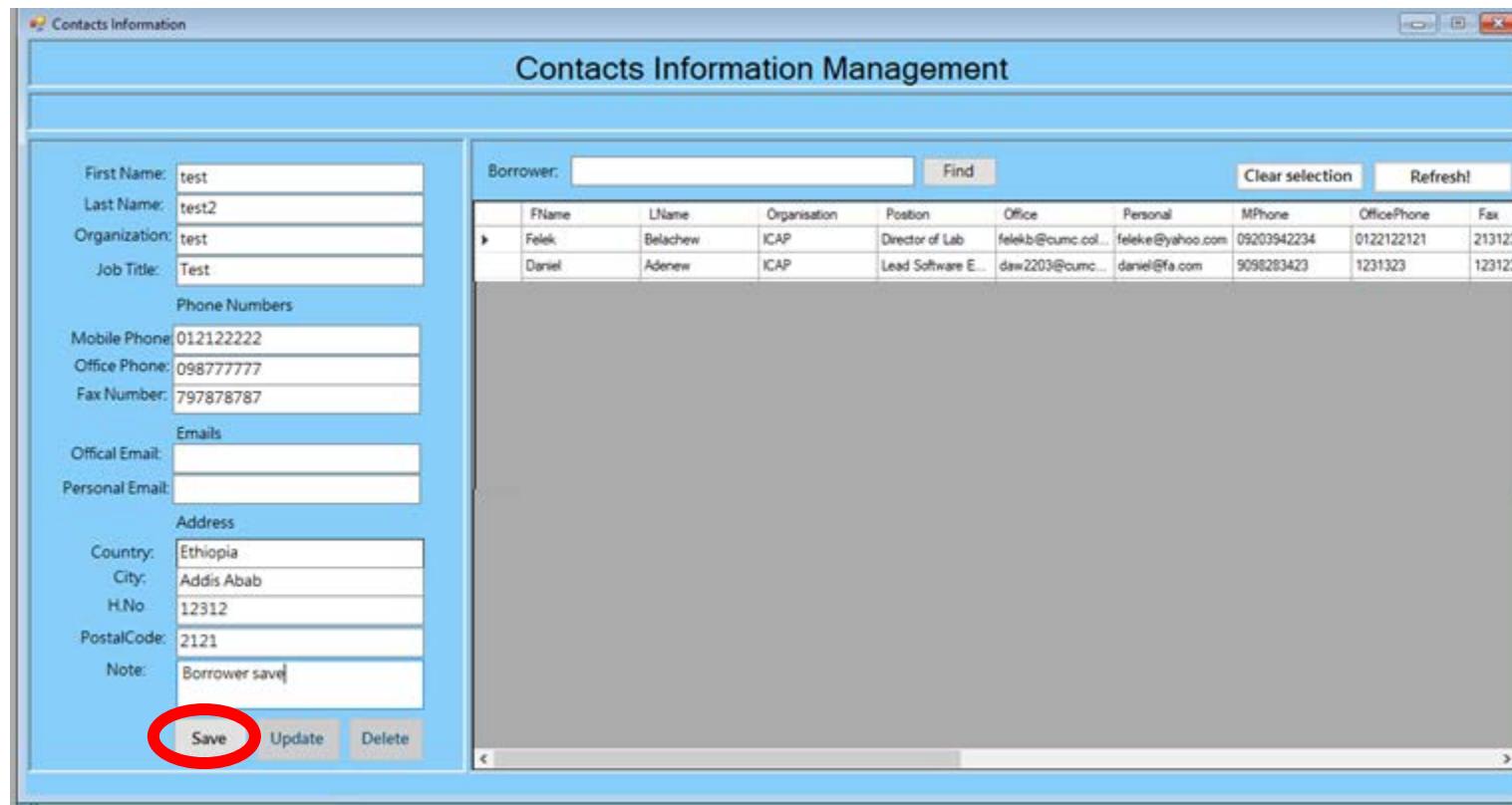
- First Name: (highlighted with a red arrow)
- Last Name:
- Organization:
- Job Title:
- Phone Numbers:
  - Mobile Phone:
  - Office Phone:
  - Fax Number:
- Emails:
  - Offical Email:
  - Personal Email:
- Address:
  - Country:
  - City:
  - H.No
  - PostalCode:
- Note:

At the bottom of the form are three buttons: Save, Update, and Delete.

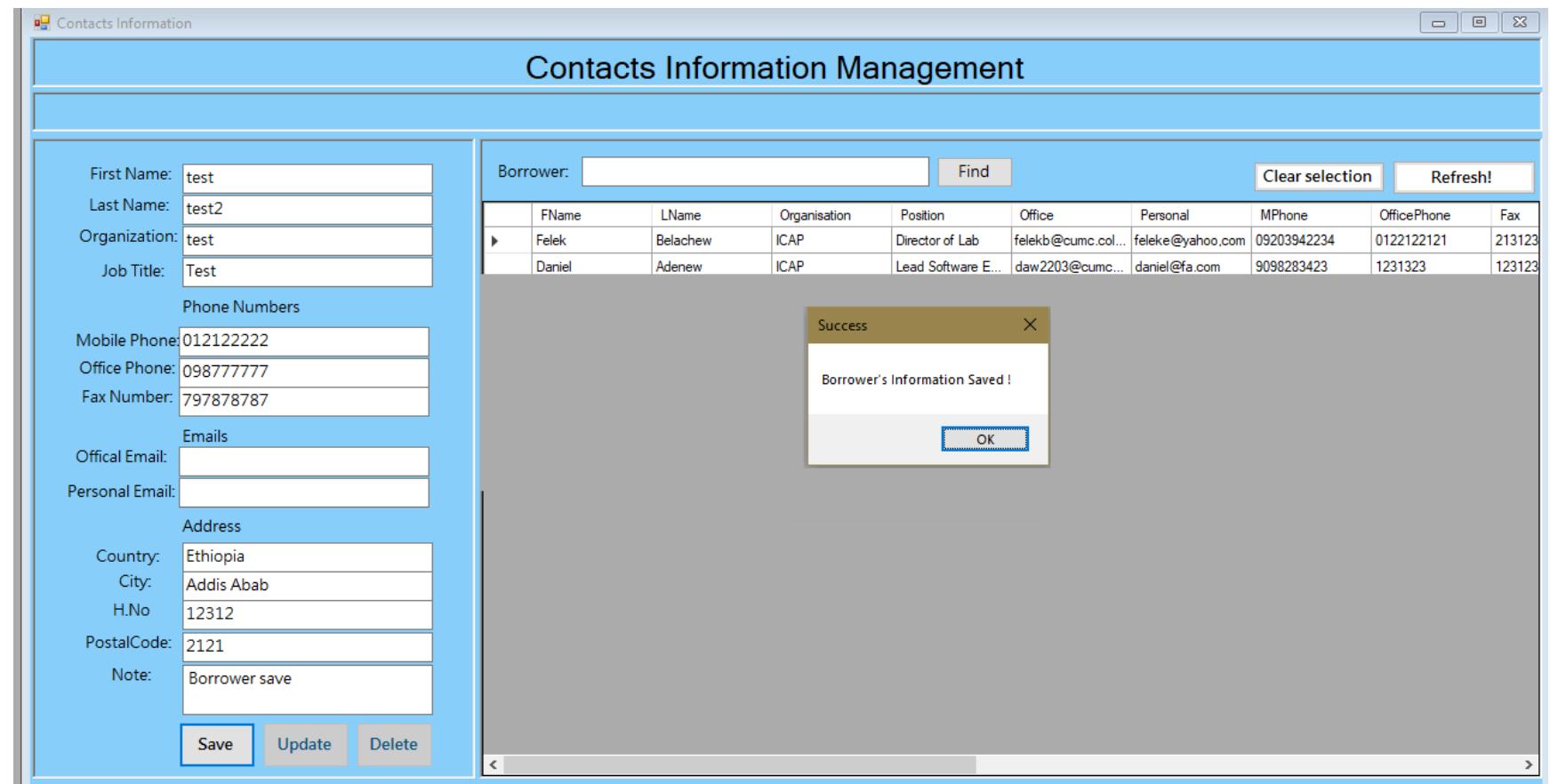
On the right side of the window, there is a grid table titled "Borrower:" showing a list of contacts. The columns are labeled: FName, LName, Organisation, Position, Office, Personal, MPhone, OfficePhone, and Fax. Two rows of data are visible:

FName	LName	Organisation	Position	Office	Personal	MPhone	OfficePhone	Fax
Felel	Belachew	ICAP	Director of Lab	felelb@cumc.col...	feleke@yahoo.com	09203942234	0122122121	213123
Daniel	Adenew	ICAP	Lead Software E...	daw2203@cumc...	daniel@fa.com	9098283423	1231323	123123

2. Press “**Save**” button to save contact. While registering new contact, “**Edit/Update**” and “**Delete**” button/ operation are inactive to prevent invalid data operation.



3. System issue **confirmation message** if save was correctly.



#### 4. To **Edit /Update/Delete** Contacts Details if existing

First, select the record you would like to edit for the list

Contacts Information

## Contacts Information Management

	FName	LName	Organisation	Position	Office	Personal	MPhone	OfficePhone	Fax
▶	Felek	Belachew	ICAP	Director of Lab	felekb@cumc.col...	feleke@yahoo.com	09203942234	0122122121	213123
▶	Update	test2	test	Test			012122222	098777777	797878

Contact Organisation: test Find Clear selection Refresh!

First Name: Update  
Last Name: test2  
Organization: test  
Job Title: Test

Phone Numbers  
Mobile Phone: 012122222  
Office Phone: 098777777  
Fax Number: 797878787

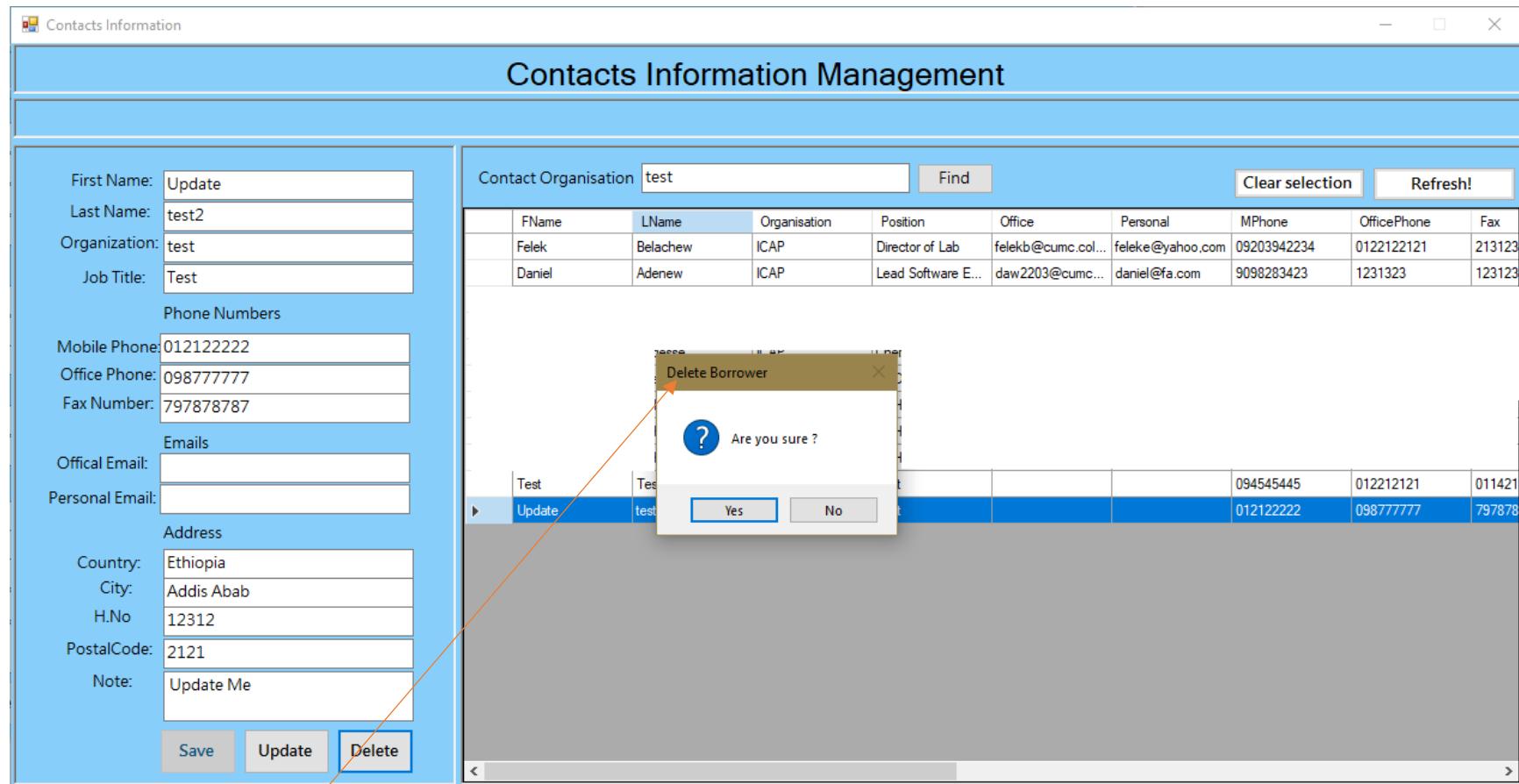
Emails  
Offical Email:  
Personal Email:

Address  
Country: Ethiopia  
City: Addis Abab  
H.No: 12312  
PostalCode: 2121  
Note: Update Me

Save Update Delete

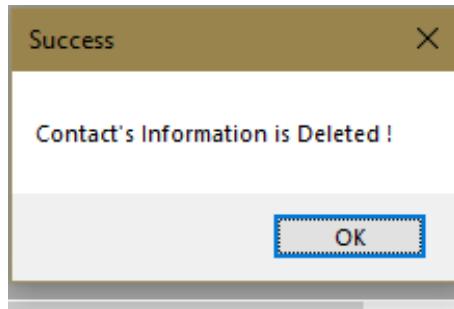
Success  
Contact's information is Updated ! OK

- To Delete a contact, first select a record from the data list on the right section of the Contact Management form as follows. And press **Delete** button



- System will show Yes/No Dialog to confirm deletion? If "Yes" Deletion of the record is confirmed. If "No" deletion will be canceled.

- After confirming deletion by pressing "Yes". If there is not error found on the deletion process , system shows a deletion completed message box.



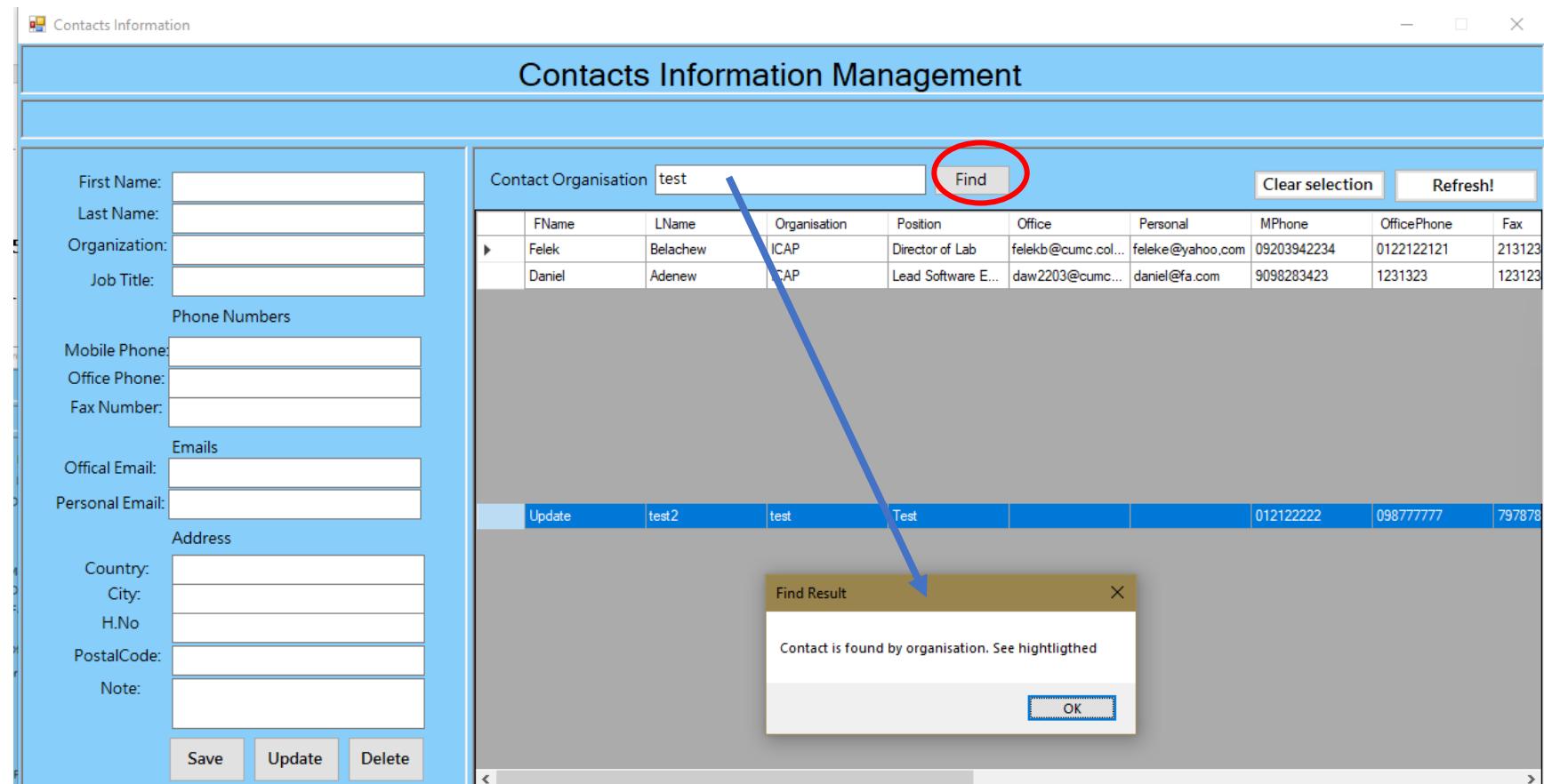
- Now the Deleted record is vanished– e.g test record is vanished.

A screenshot of the "Contacts Information Management" application window. On the left, there is a form with fields for First Name, Last Name, Organization, Job Title, Phone Numbers (Mobile Phone, Office Phone, Fax Number), Emails (Official Email, Personal Email), Address (Country, City, H.No, PostalCode), and a Note field. Below the form are three buttons: Save, Update, and Delete. On the right, there is a grid table titled "Contact Organisation" with the search term "test" entered. The table has columns: FName, LName, Organisation, Position, Office, Personal, MPhone, OfficePhone, and Fax. Two rows are visible:

FName	LName	Organisation	Position	Office	Personal	MPhone	OfficePhone	Fax
Felek	Belachew	ICAP	Director of Lab	felekb@cumc.col...	feleke@yahoo.com	09203942234	0122122121	213123
Daniel	Adenew	ICAP	Lead Software E...	daw2203@cumc...	daniel@fa.com	9098283423	1231323	123123

5. Searching contact by Organization name using search feature:

- Enter the name of the organisation on search box , and press “ Find” to start the search. System look the data and If match found it will **highlight** the **record** and show a **found message** or not found message.

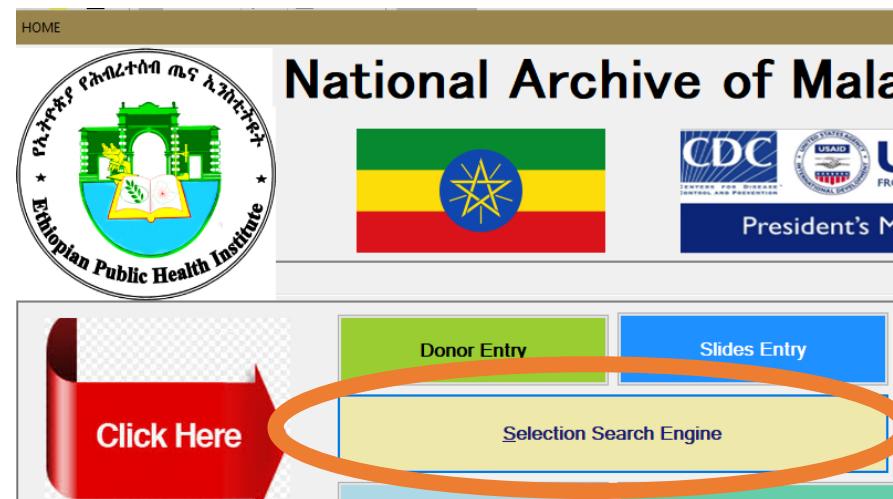


## 1.1.4 Slide Selection Search Engine and Checkout/Lending Slides

### Requirements addressed Here:

- o The ability to select slides per Species Specifics e.g *pv* ,*pf* , *pvpf* , *po* , *bo* ...etc
- o The ability to select sides in combination of many Specific Specifics together in one search
- o The ability to select slides in combination of Species Specifics, Density Category and Quantity required for each Species Specifics
- o The ability to check out slides to Contacts/Borrowers/Exchange body once the search performed based on above abilities, and results found based on the given criteria's

To start the Selection Search Engine operation, we need to select the "Selection Search Engine" button from the central menu as depicted in the diagram below.



- After Opening the “**Selection Search Engine**” form you will be presented with the following window for mentioned operations above. Let see them one by one.

- ❖ Slide Selection Criteria per Species/Parasite Type:  
**(Pf,Pv,PfPv,Po,Pm,Others(popm,pmpo),Borreilla,Negative)** Slides
- ❖ Density Categories represent **Low Density, Medium Density and High Density** selections
- ❖ Quantity represents – **How much quantity for Pf with LD or MD or HD ?** and for all other parasite types. Each quantity of slide will be searched based on the *Parasite/Species Type , Density Type and Quantity*.

BarCode	Donor	Sequence	Country	Scategory	Specifics	Stage	Density	Cabinet#	Drawer
12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12
12123003	123	003	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
12123001	123	001	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
12121233	113	223	12	Falciparum-Vivax ...	pfpv	Ring	1000 - 10,000 pa...	1	1

## ➤ Searching for Slides based on Criteria

**N.B** By Default on right side of the form, the list show only those that are available from the total slides. These records selected based on status with **No Damaged**, **Not Reserved** and **Not Borrowed** status currently active for borrow/exchange in the archive database.

- ❖ This is for demonstration purpose only. Actual EPHI Slide database could hold 40,000 or 100,000 of slides.

Selection

### Slide Selection Search Engine

Parasite	Density Category	Quantity
Pf	LD	0
	MD	0
	HD	0
Pv	LD	0
	MD	0
	HD	0
Pfv	LD	0
	MD	0
	HD	0
Po	LD	0
	MD	0
	HD	0
Pm	LD	0
	MD	0
	HD	0
Others	LD/MD/UD	0
Borrelia	LD/MD/UD	0
Negatives	>> >> >>	0

Borrowers: --Select Borrower/Contact--- << Add new || View >> Refresh Contacts

From: Wednesday, May 6, 2020 Date: Wednesday, May 6, 2020 Reason: ---Select Reason-- Days: 0 << Calculate Days Here >>

Search results Total Request 0 Found in Bank: 0

Checkout >> Refresh

BarCode	Donor	Sequence	Country	Scategory	Specifics	Stage	Density	Cabinet#	Drawer
12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12
12123003	123	003	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
12123001	123	001	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
12121233	113	223	12	Falciparum-Vivax ...	pfpv	Ring	1000 - 10,000 pa...	1	1

Concept Idea by Mekonnen Tadesse PMI/MDTA

## ➤ Searching for Slides based on Criteria Continued

To perform search user has to enter , non zero (0) values on any of the quantity input box and start search as follows.

### Example 1:

User might search (1) **Hight Density (HD)** value **PfPv** Slide as shown below and press search.

**Result:** System will look the entire database data for the search criteria and will display found result as follows if found.

Selection

### Slide Selection Search Engine

Parasite	Density Category	Quantity
Pf	LD MD HD	0 0 0
Pv	LD MD HD	0 0 0
PfPv	LD MD HD	0 0 1
Po	LD MD HD	0 0 0
Pm	LD MD HD	0 0 0
Others	LD/MD/UD	0
Borrelia	LD/MD/UD	0
Negatives	>> >>	0

Borrowers: --Select Borrower/Contact-- << Add new || View >> Refresh Contacts

From: Wednesday, May 6, 2020 Due: Wednesday, May 6, 2020 Reason: ---Select Reason-- Days: 0 << Calculate Days Here >>

Search results Total Request 0 Found in Bank: 0 Checkout >> Refresh

Barcode	Donor	Sequence	Country	Category	Specifics	Stage	Density	Cabinet#	Drawer
12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12

<>

Concept Idea by Mekonnen Tadesse PMI/MDTA

## ➤ Searching for Slides based on Criteria Continued

To perform search user has to enter , non zero (0) values on any of the quantity input box and start search as follows.

### Example 2:

A combined result of **Quanity (2)** **Hight Density (HD)** value **PfPv** Slide as shown below and press search and Borrella Specicice with quanity 1 or more.

i.e the query looks:

PfPv , quanity =2 , Density=HD

**Union**

Borrela , Quanity=1+ ,Density=HD/MD/LD (any)

**Result:** System will look the entire database data for the search criteria and should display the found result as follows.

The screenshot shows the software interface for searching malaria slides. On the left, there is a sidebar with parasite categories: Pf, Pv, PfPv, Po, Pm, Others, and Negatives. Each category has dropdown menus for Density (LD, MD, HD) and Quantity. The 'PfPv' section has its Quantity dropdown set to 2, indicated by a red circle and a callout line. The 'Borrela' section has its Quantity dropdown set to 1, also indicated by a red circle and a callout line. At the bottom of the sidebar are 'Reset' and 'Search' buttons. The main area contains search filters: Borrowers (dropdown), From (date: Thursday, May 7, 2020), Due (date: Thursday, May 7, 2020), Reason (dropdown), Days (0), and a 'Calculate Days Here' button. Below these are 'Checkout >>' and 'Refresh' buttons. A table titled 'Search results' shows three rows of slide details:

Barcode	Donor	Sequence	Country	Scategory	Specifics	Stage	Density	Cabinet#	Drawer
12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12
12123003	123	003	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
11001011	011	001	11	Borrela	borella	None	Less than 100 pa...	1	1

## ➤ Searching for Slides based on Criteria Continued

Searching all quantities values as default(0) will return any record.

The screenshot shows the 'Slide Selection Search Engine' window. On the left, there is a grid for entering slide quantities for various parasites and density categories. The parasites listed are Pf, Pv, Pfv, Po, Pm, Others, Borrelia, and Negatives. For each parasite, there are three density categories: LD, MD, and HD, each with a quantity input field set to 0. Below the grid are two buttons: '<< Reset' and 'Search >>'. To the right of the grid are search criteria: 'Borrowers: --Select Borrower/Contact--', 'From: Thursday, May 7, 2020', 'Due: Thursday, May 7, 2020', 'Reason: ---Select Reason---', and 'Days: 0'. Below these are buttons for 'Checkout >>' and 'Refresh'. At the bottom, there is a search results table with columns: BarCode, Donor, Sequence, Country, Scategory, Specifics, Stage, Density, Cabinet#, and Drawer. A note at the bottom left says 'Concept Idea by Mekonnen Tadesse PMI/MDTA.'

To perform a new search after one search by changing criteria. You need to clear the former search result by pressing “**Reset**” button. See below for samples. The search will return to its default initial values.

The screenshot shows the "Slide Selection Search Engine" window. On the left, a sidebar lists parasites (Pf, Pv, PfPv, Po, Pm, Others, Borrelia, Negatives) with dropdown menus for Density Category (LD, MD, HD). Below this are buttons for '<< Reset' and 'Search >>'. The main area contains search parameters: Borrowers dropdown, From/To date pickers, Reason dropdown, Days dropdown, and buttons for '<< Add new || View >>' and 'Refresh Contacts'. Below these are 'Search results' fields for Total Request (0) and Found in Bank (0), and buttons for 'Checkout >>' and 'Refresh'. A large table displays search results with columns: BarCode, Donor, Sequence, County, Scategory, Specifics, Stage, Density, Cabinet#, and Drawer. The table shows several rows of data, including slide 12123002 which is selected (highlighted in blue).

BarCode	Donor	Sequence	County	Scategory	Specifics	Stage	Density	Cabinet#	Drawer
12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12
12123003	123	003	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
12123001	123	001	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
11001011	011	001	11	Borella	borella	None	Less than 100 pa...	1	1
12121233	113	223	12	Falciparum-Vivax ...	pfpv	Ring	1000 - 10,000 pa...	1	1

Concept Idea by Mekonnen Tadesse PMI/MDTA

## ➤ Checking Out Search Results –

After doing a slide search based on the criteria examples shown above. The next operation we can perform on “**Slide Selection Search Engine**” form is to checkout slides for given borrower.

In the next sections we will see step by step guide how it is done.

1. First, assume we had a search e.g Pfvp HD 1
2. When search returned a result, and assume we are okay to checkout the slides in the search result
3. We select Contact/Borrower from following Drop Down list

Borrowers: --Select Borrower/Contact--

<< Add new || View >> Refresh Contacts

Type the name of the organization or the person to search contacts on dropdown box show below.

Borrowers: --Select Borrower/Contact--

From: --Select Borrower/Contact--

Due:

Reason:

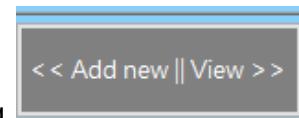
Days:

Search results

BarCode Test Test Org: Test Position: Test

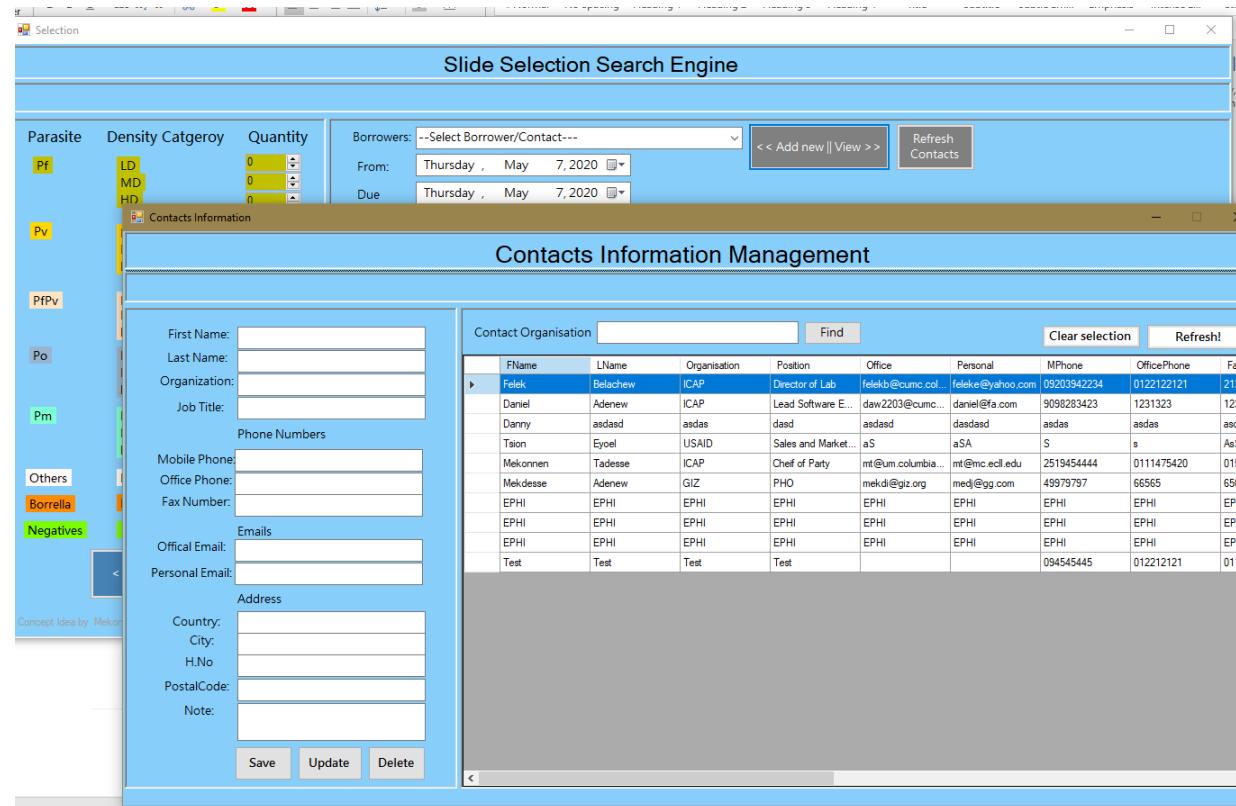
Category Specifics Stage

4. Select Contact



5. If you did not find the **Contact**, you can always **Add new on the fly** by pressing **button** , and a Contact Form popups up for new registration as follows

6. Now you can add the contact details and press save. Please **refer 1.1.4** of this document for step by step **contact registration** process.



7. Now select **From** and **To Date** using the **DateTime Picker** to specify checkout and due dates, respectively.

From: Tuesday , April 28, 2020

Due: Wednesday, May 20, 2020

8. After entering a Valid Dates. Press “**Calculate Days**” button to compute how many days you would like to borrow.

Selection

Slide Selection Search Engine

Parasite	Density Category	Quantity
Pf	LD	0
	MD	0
	HD	0
Pv	LD	0
	MD	0
	HD	0

Borrowers: --Select Borrower/Contact--

From: Tuesday , April 28, 2020

Due: Wednesday, May 20, 2020

Reason: ---Select Reason--

Days: 22

Notice that if the value is positive , "Calculate Days" button will be colored in Green. If Dates are not valid , resulting **(-ve/0 zero)** days computed, "Calculate Days Here" button will be colored in red to show this error.

9. The next step to do once we have green light after computing "Days" as shown above on step 8 correctly. We might need to select the type of checkout we want to happen using the **Reason** Drop Down List options to indicate this.

The screenshot shows a software interface titled "Slide Selection Search". It includes fields for "Borrowers" (dropdown), "From" (date: Thursday, May 7, 2020) and "Due" (date: Thursday, May 7, 2020), and a "Reason" dropdown menu. The "Reason" menu is open, displaying four options: "Test and Exam" (numbered 1), "Training" (numbered 2), "PPT" (numbered 3), and "Exchange" (numbered 4). A red arrow points from the text in step 9 to the "Reason" dropdown menu.

Reason
1 Test and Exam
2 Training
3 PPT
4 Exchange

➤ **Reason / Checkout Types after Slide Selection Search**

**Requirement Addressed:**

Reason for Checkout Can be for the following Type as per requirements gathering.

- 1. For Testing or Exam Borrower**
- 2. Training**
- 3. PPT**
- 4. Exchange**
- 5.**

**Option 1 – 3** are almost the same. They use a borrower contacts and they are expected to return back the slides at some point of time, as per the due date.

**When Option 4(Exchange) is selected.** ~~We have special condition. See Section Below dedicated to Exchanges]–~~

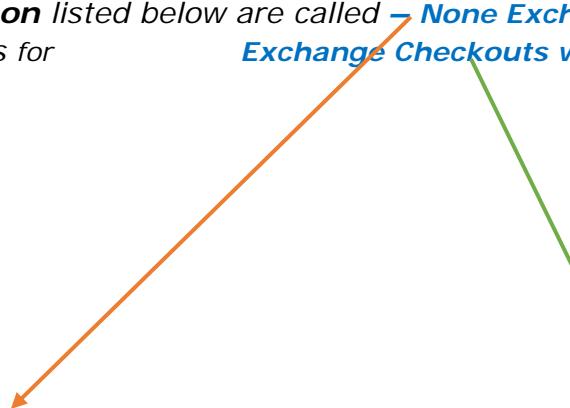
- We skip to apply From and Due Date. i.e. Slides who are checked out for (indefinite) time as Exchange will not be returned back to the slide archive in a normal Check-in/Checkout Circulations. There is a section about Exchange below if you would like to learn more about Exchanging Donor/Slides, Viewing Exchanged Slides.

For this part lets focus on use of **option 1-3.**

## ➤ Completing Checkout Operations for Test, Exam, Training options

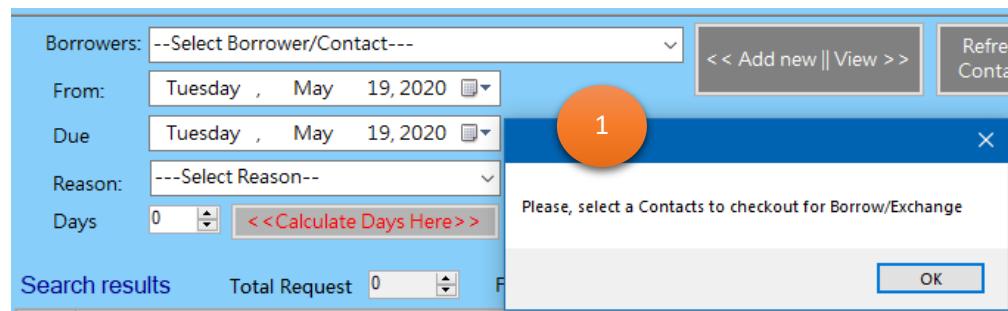
- A. First as shown above on Selection search engine section of this document. After performing the search select the Reason to indicate the type of checkout.

i.e. slides with **Reason** listed below are called — **None Exchange Checkouts** (Slide are expected to be checked in later on) where us for **Exchange Checkouts with Reason Exchange** are not.

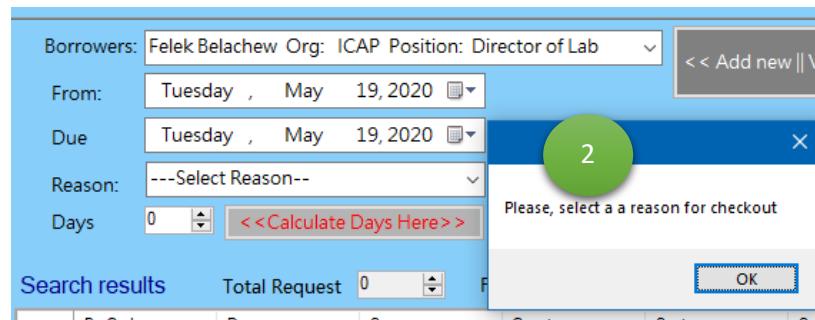


- B. Before completing the checkout, system validates for all the inputs are correctly set.

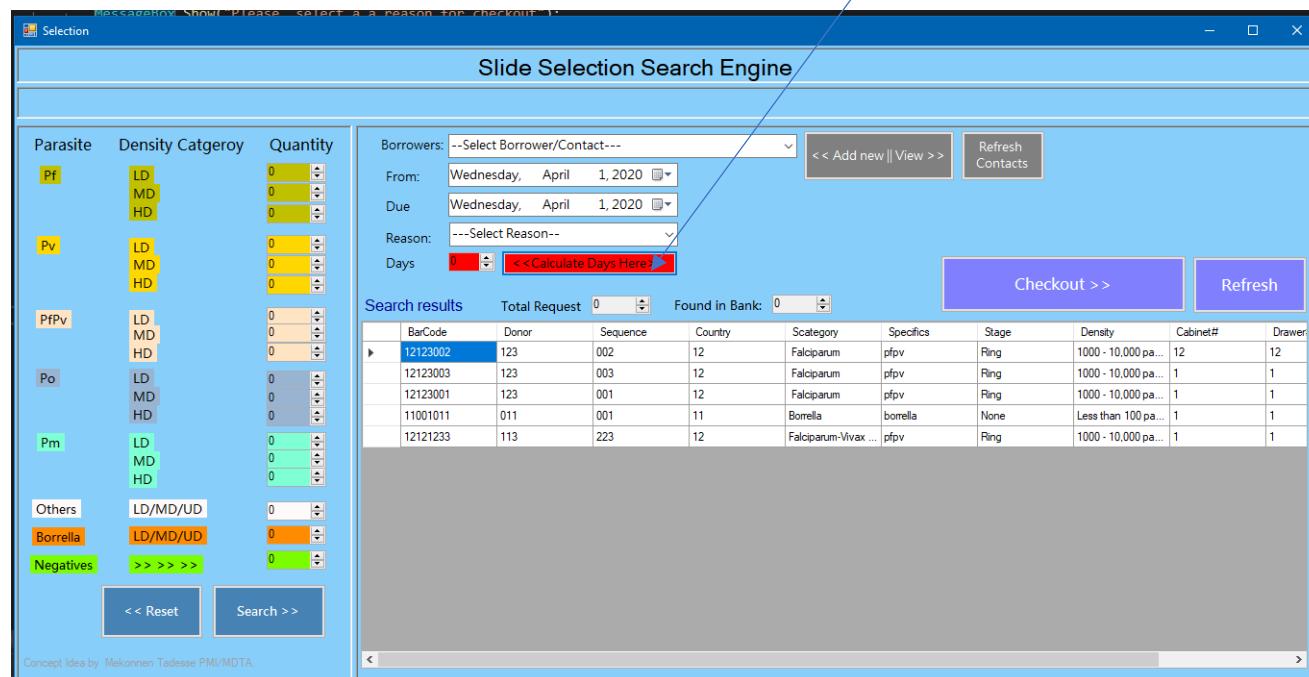
1. Checks if you have selected a contact/borrower
2. From Date
3. To Date – (*system will only accept future dates, if days computed using From and To are -ve*) that will be validation error. See below
4. Reason
5. Days by pressing Calculate date



### Validating Checkout Reason:



Validating **From and To Date**, can be calculated by pressing calculate days button. If you day calculated is equal or less than zero (**-ve**) value the button shows **error** by turning into red.



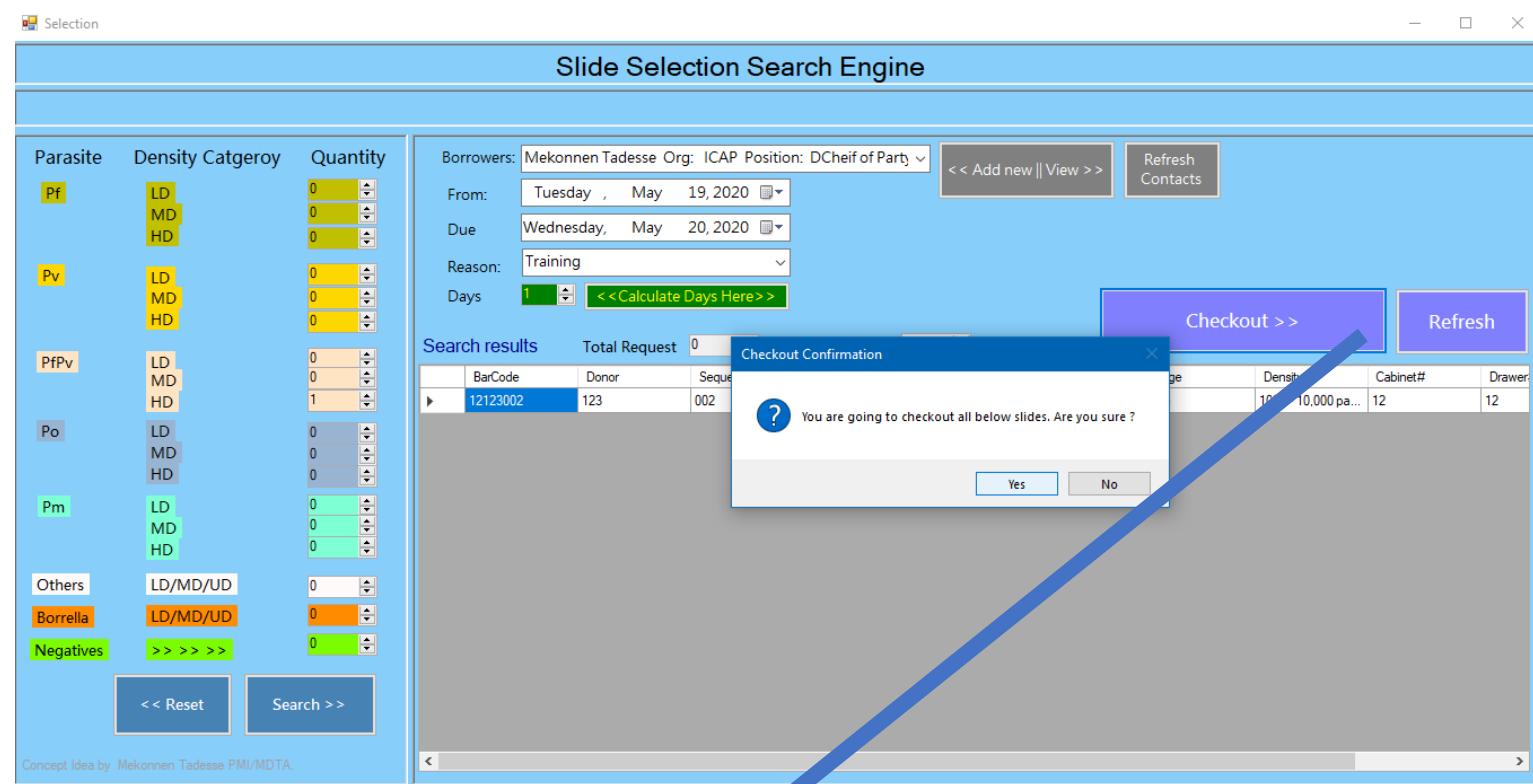
If all validations are corrected after the validation messages shown above and/or inputs are field correctly as shown below.

The screenshot shows the software interface for managing malaria slide requests. At the top, there are fields for 'Borrowers' (set to 'Daniel Adenew Org: ICAP Position: Lead Software Engr'), 'From' (set to 'Tuesday, May 19, 2020'), 'Due' (set to 'Wednesday, May 20, 2020'), 'Reason' ('Test and Exam'), and 'Days' (set to '1'). A green button labeled '<<Calculate Days Here>>' is visible. To the right are buttons for '<< Add new || View >>' and 'Refresh Contacts'. Below these are buttons for 'Checkout >>' and 'Refresh'. Underneath is a table titled 'Search results' showing slide details: BarCode, Donor, Sequence, Country, Scategory, Specifics, Stage, Density, Cabinet#, and Drawer. The table contains five rows of data. A modal dialog box titled 'Checkout Confirmation' is displayed in the center, asking 'You are going to checkout all below slides. Are you sure?'. It has 'Yes' and 'No' buttons. A blue bracket on the left side groups the 'Borrowers' through 'Days' fields.

	BarCode	Donor	Sequence	Country	Scategory	Specifics	Stage	Density	Cabinet#	Drawer
▶	12123002	123	002	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	12	12
	12123003	123	003	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
	12123001	123	001	12	Falciparum	pfpv	Ring	1000 - 10,000 pa...	1	1
	11001011	011	001	11	Borella	barella	None	Less than 100 pa...	1	1
	12121233	113	223	12	Falciparum-Vivax ...	pfpv	Ring	1000 - 10,000 pa...	1	1

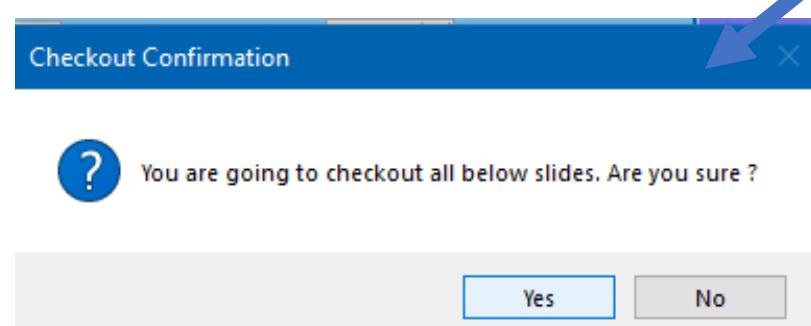
**Congrats!** if you come to this step correctly a complete checkout will happen and system report will be generated for your print out. See below.

E.g. checking out PfPv slide with HD and quantity 1. After a performed search we found 1 result returned and checkout out as shown in the example below.

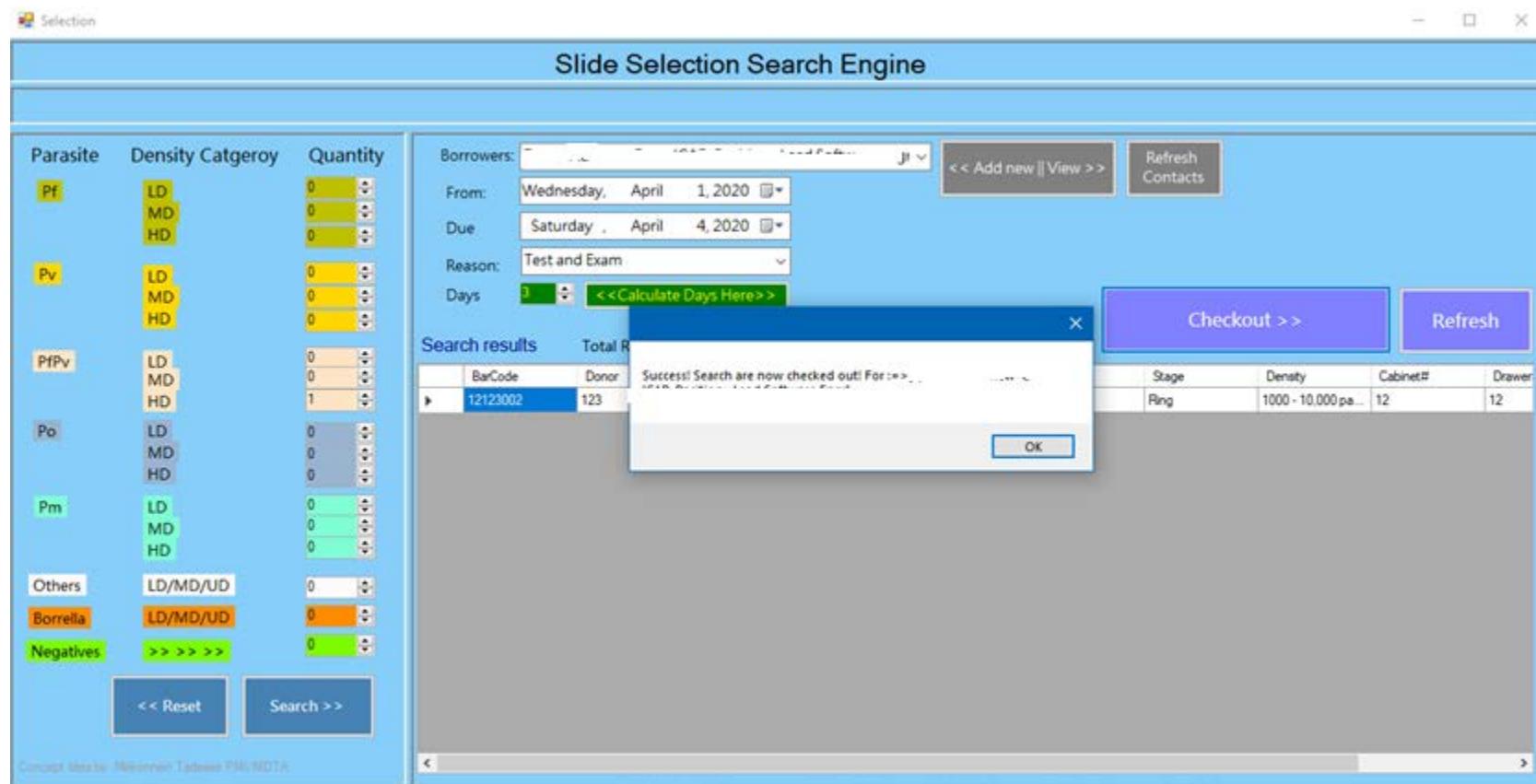


Press “**Yes**” if you would like to continue checking out.

Press “**No**” to cancel checking out.



- System will show success for the searched and selected slides checkout as follows.



Press **Okay** to anyways and wait a little, a **printout** will be opened automatically on the screen as show below.

In below example we have showed that checking out a **single slide**.

**Print the report as you prefer or save it using the tool bar.**



SearchCheckoutReport

Main Report

SAP CRYSTAL REPORTS®

EPHI - Borrowed Slides Report

The following slides are checkedout for below details:  
BORROWER: Daniel Adenew Borrower Organisation: ICAP 1231323909828342daw2203@cumc.col.com  
5/19/2020

bar_code	species	species_cat	density	category	checked	due_date	reason	cabinet	slver_num	box_number
12123002	pfpv	Falciparum	1000 - 10,000	px	5/19/2020	5/20/2020	Test and	12	12	12

Keep this information safe. Printed from SBMS System. Number of slides total: 1 1

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 75%

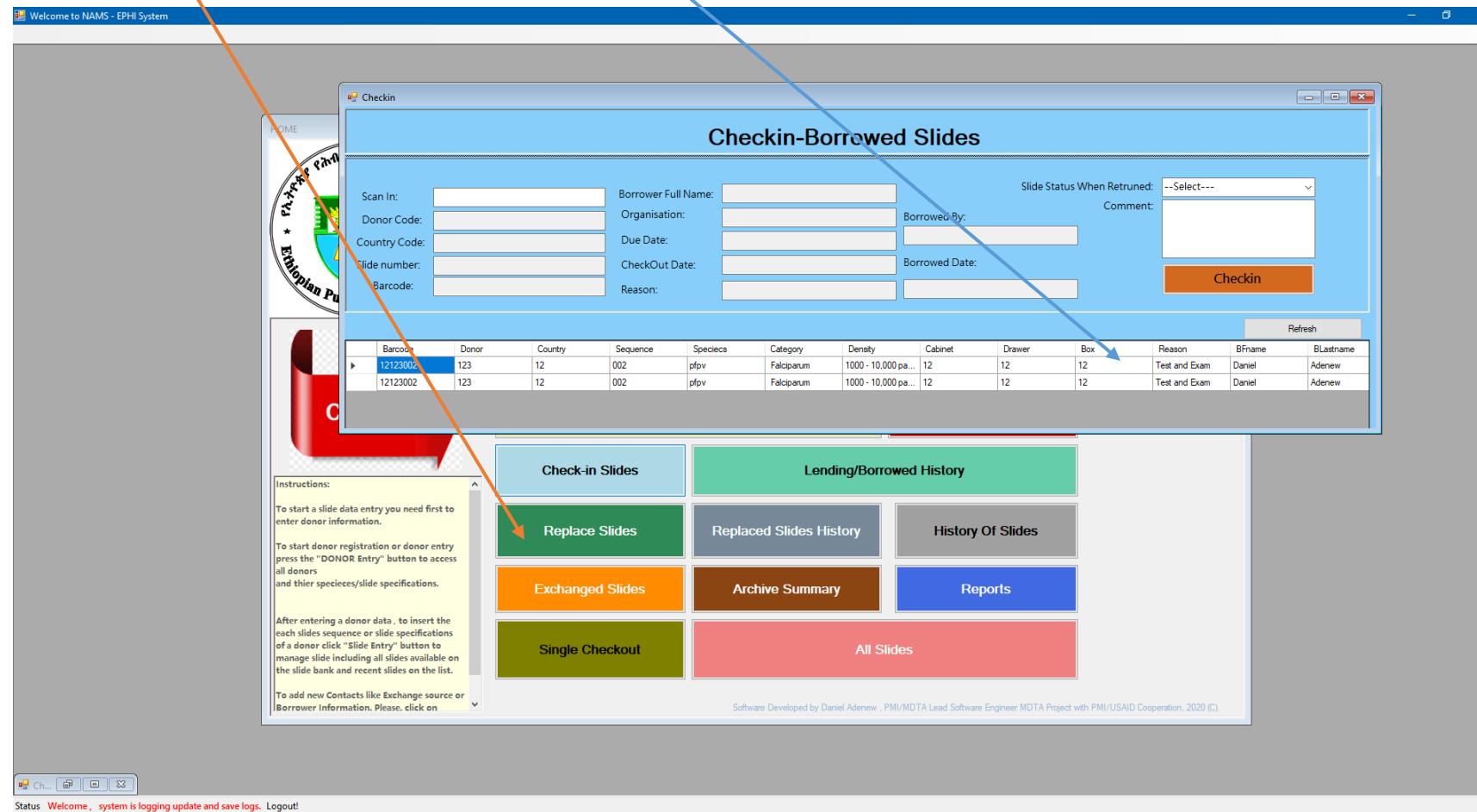
A screenshot of the SAP Crystal Reports interface. The main window displays a report titled "EPHI - Borrowed Slides Report". The report header includes the date "5/19/2020" and the borrower's information: "BORROWER: Daniel Adenew Borrower Organisation: ICAP 1231323909828342daw2203@cumc.col.com". Below the header is a table with columns: bar\_code, species, species\_cat, density, category, checked, due\_date, reason, cabinet, slver\_num, and box\_number. A single row is shown: "12123002", "pfpv", "Falciparum", "1000 - 10,000", "px", "5/19/2020", "5/20/2020", "Test and", "12", "12", "12". At the bottom of the report, it says "Keep this information safe. Printed from SBMS System." and "Number of slides total: 1 1". The toolbar at the top has various icons for printing, saving, and navigating. The status bar at the bottom shows "Current Page No.: 1", "Total Page No.: 1", and "Zoom Factor: 75%".

➤ Let see the report in next window

EPHI - Borrowed Slides Report								
The following slides are checkedout for below details:								
Borrower: Daniel Adenew Borrower Organisation: ICAP 12313239098283423daw2203@cumc.col.com								
5/19/2020								
bar_code	specifics	species_cat	density_categon	checked	due_date	reason	cabinet	slaver_num
12123002	pfpv	Falciparum	1000-10,000 p/	5/19/2021	5/20/2020	Test and	12	12
Keep this information safe. Printed from SBMS System.								
Number of slides total:				1		1		

**N.B** [Non-Exchange Slide Selection and checkout process is completed].

To confirm that you checked out slide is **Correctly** checked out. Go to Main menu and press **"Check-in Slides Button"**.



### 1.1.5 Exchanging Slides / Checkout for Exchange

#### Requirements addressed Here:

- The ability to check out slides to Exchange contact's once the search performed based on above abilities, and results found based on the given criteria's
- Slide are checked out as exchange, printout / report of the exchange is available right after the action
- 

To start the **Exchange operation**, we need to select the "**Selection Search Engine Form**" button from the central menu as depicted in the diagram below.

Please refer section **1.1.4** of this document "**Selection Search Engine**".

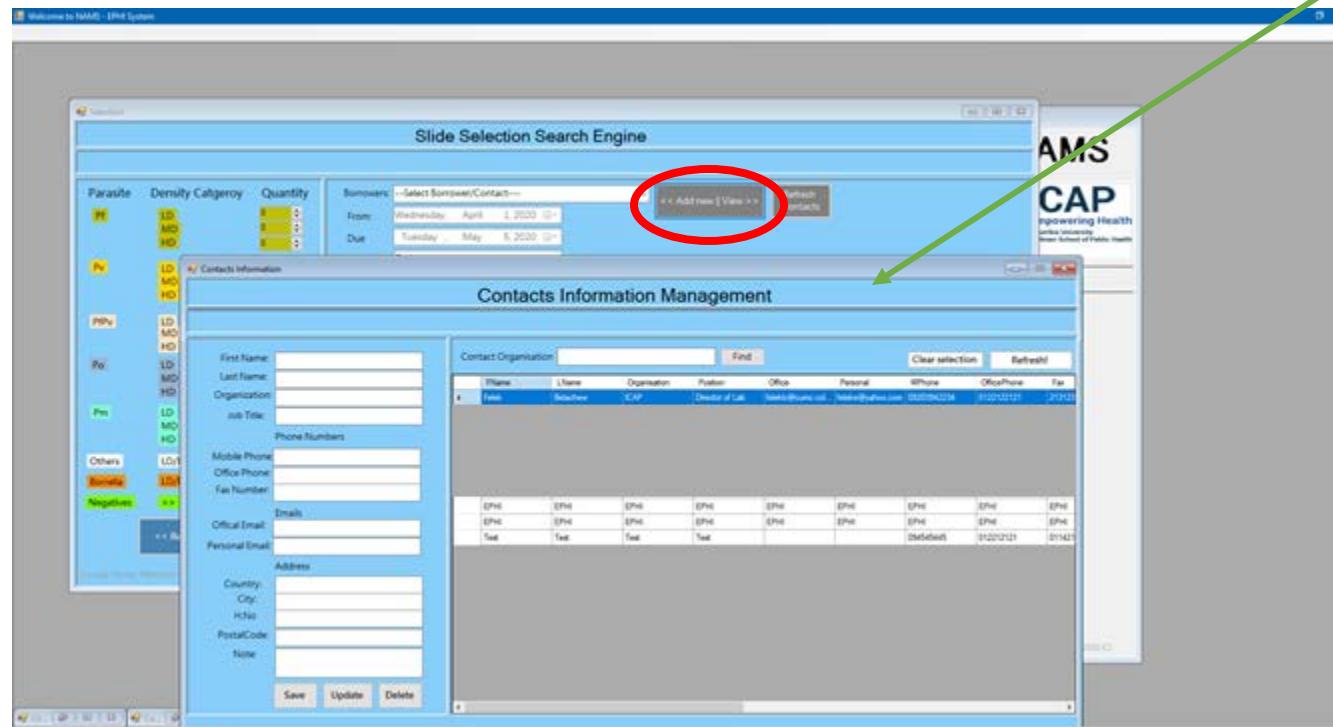
**Steps are continued on next page.**

## ➤ Searching and Selecting Slides for checkout

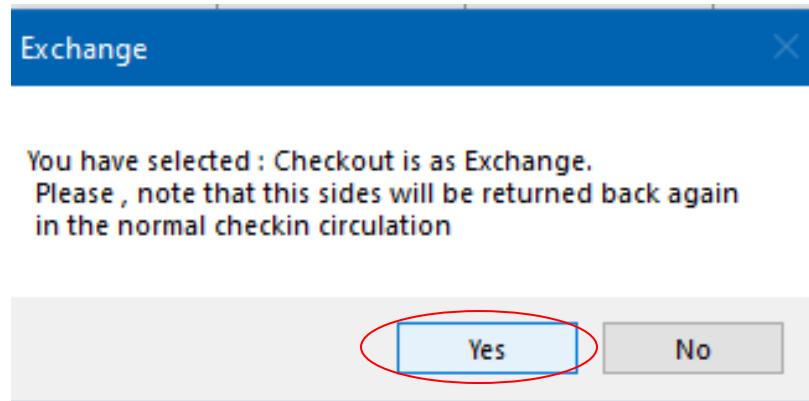
As this is similar concept with slide selection for **Training/Exam/PPT**. The one thing different here is the option for Slide Checkout Reason has to be Selected as **Exchange**.

1. First perform a search of any kind of slides by species types and density/quantity using the "Search"
2. Select the Exchange Contact if you have it on the system before

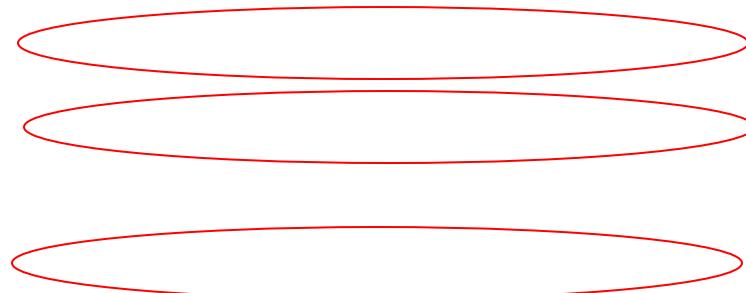
3. If contact is New press "**Add New Contact**" Button  
windows will appear as shown



4. After adding a new contact or select existing from the list
5. Skip From and To Inputs as we don't want them to be filled for Exchange
6. Change the Reason Drop Down Box To **Exchange**.
7. System will immediately shows you the following message: and Press "**Yes**"/"**No**" based on your choice.

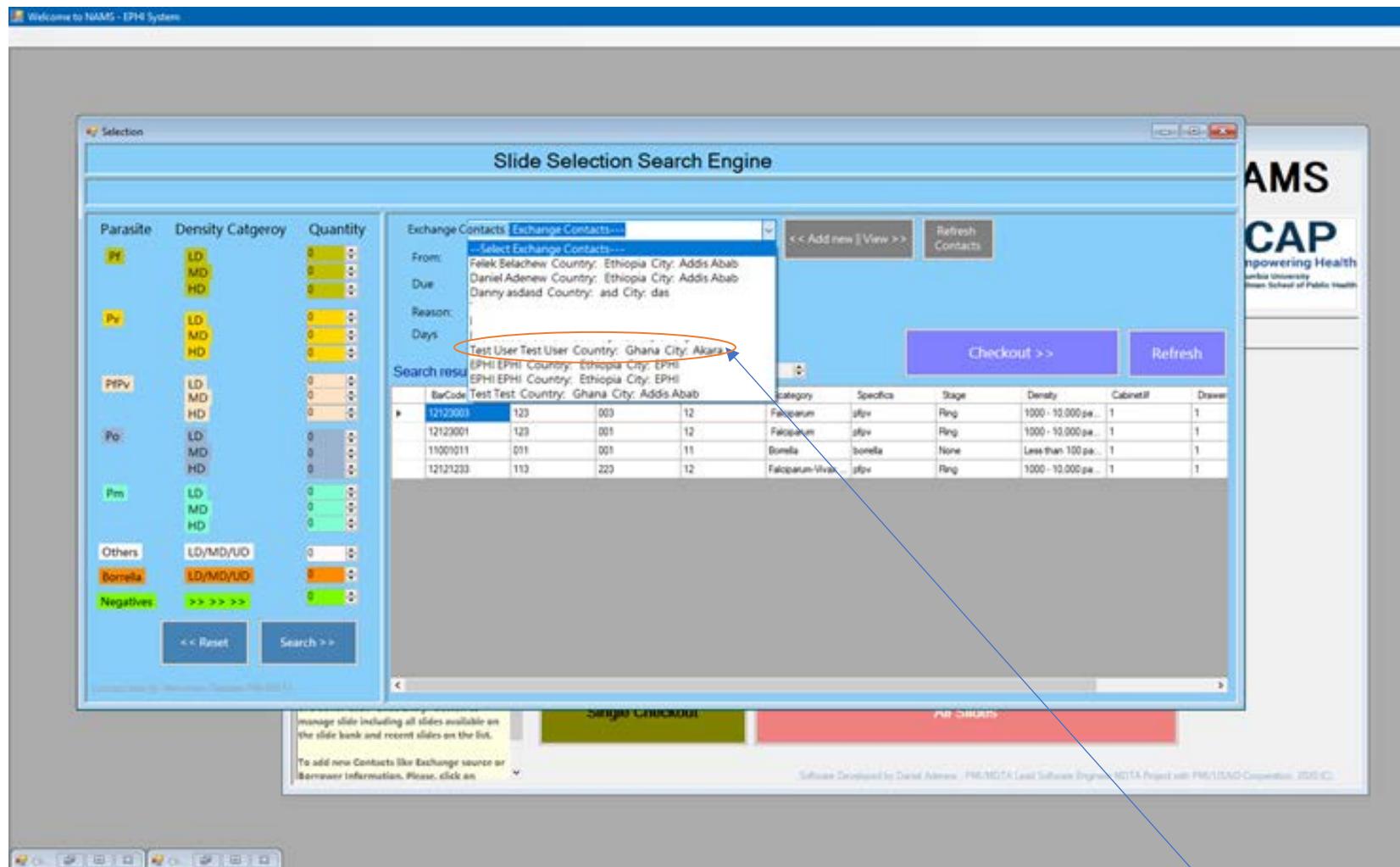


8. To do this Just go to Reason Drop Down Box and Select Exchange, that will make al the input buttons including **Days, From and To Data** fields disabled as they are not necessary for the exchange information capturing and skipped for validation checks



- Also the contact Drop Down List will automatically change to displaying contacts with their Country , Full Name and City as show below.

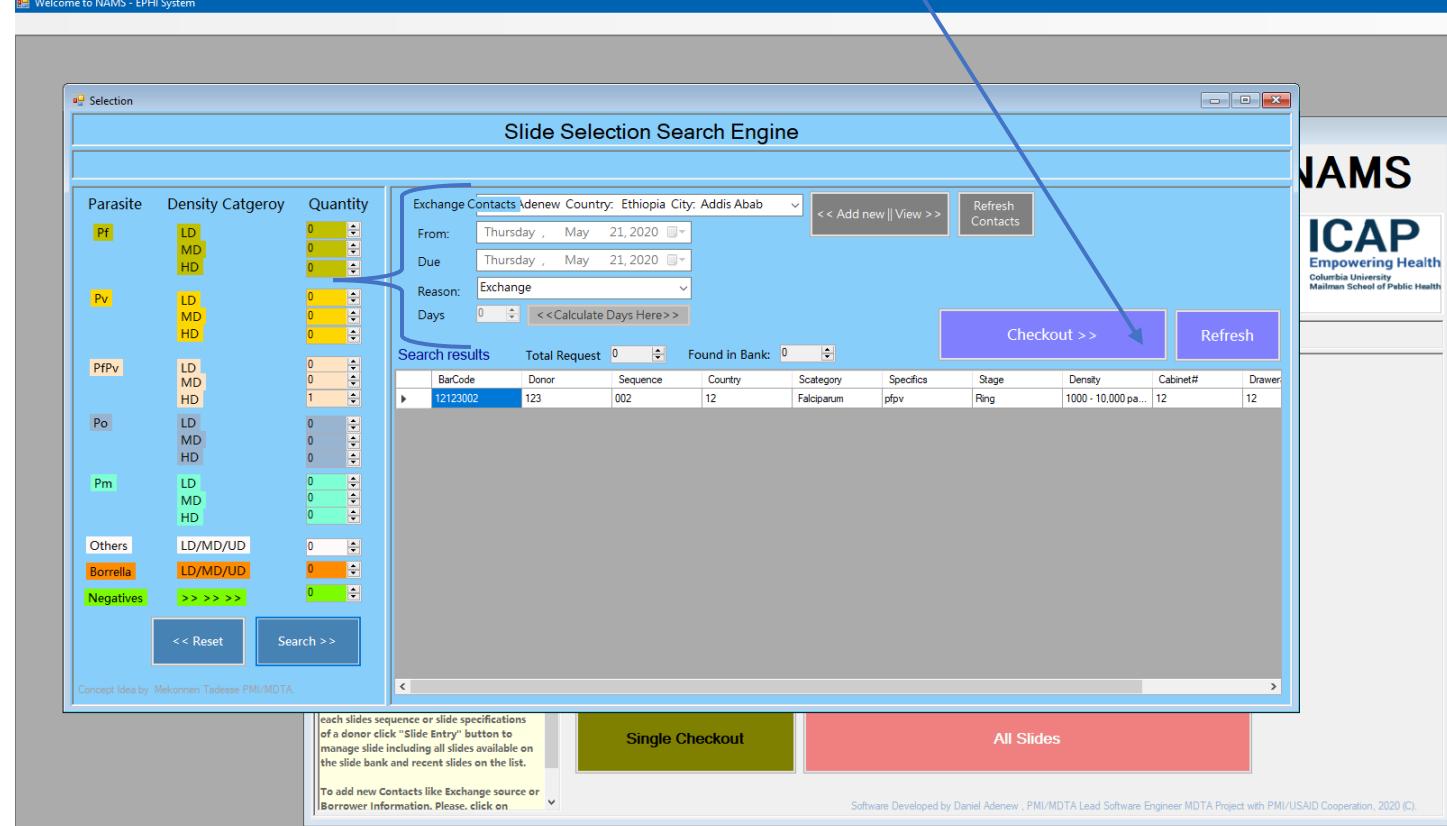
## 9. Select the Exchange Contact



Select one contact for instance we have selected Test – Test, Country : Ghana ,City Akhara

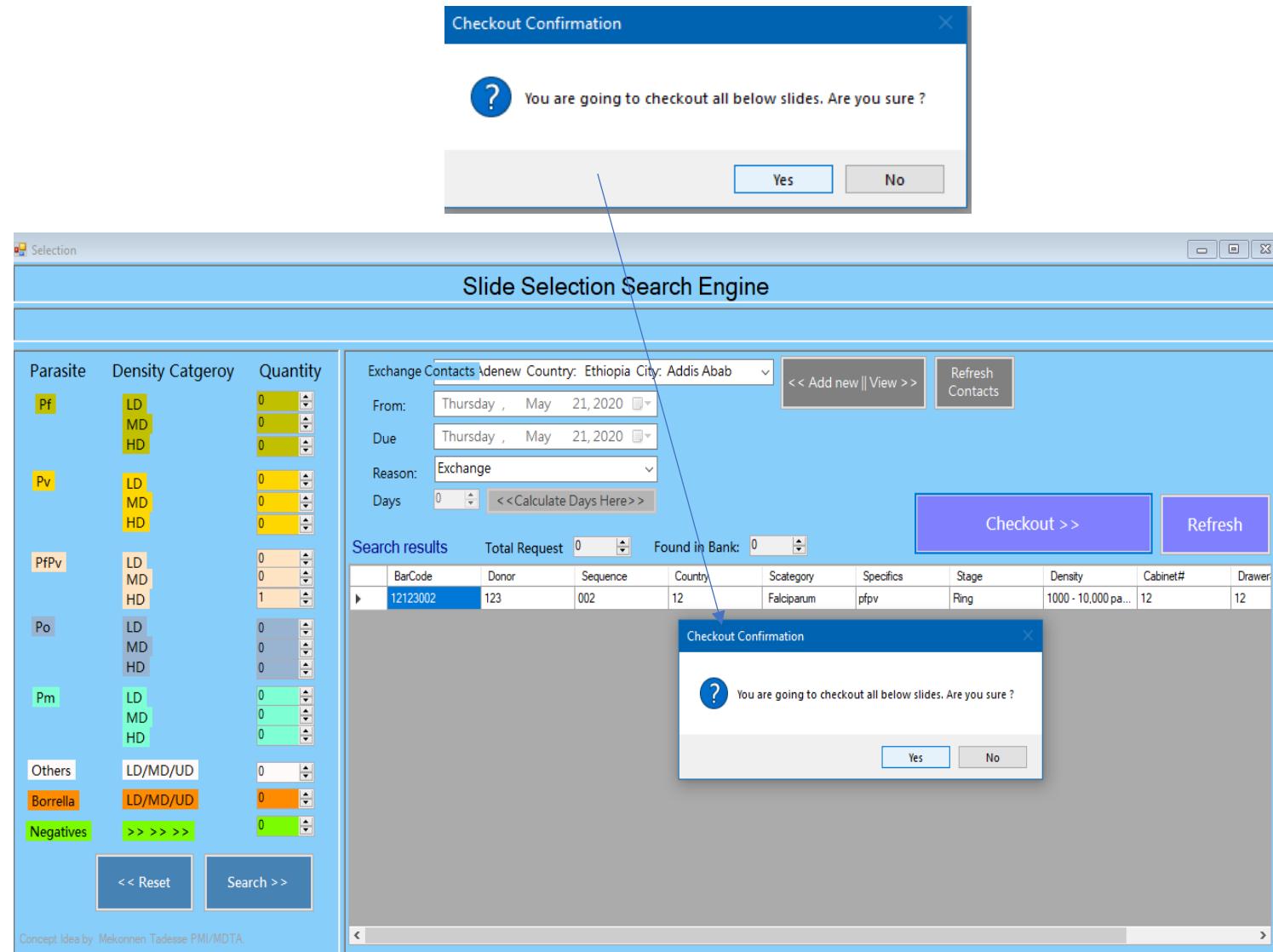
## 10. Complete the Exchange Checkout

Now if you are okay with Slide Listed and Want to go checking out the list of slides as **Exchange**  
Press – “Checkout “Button



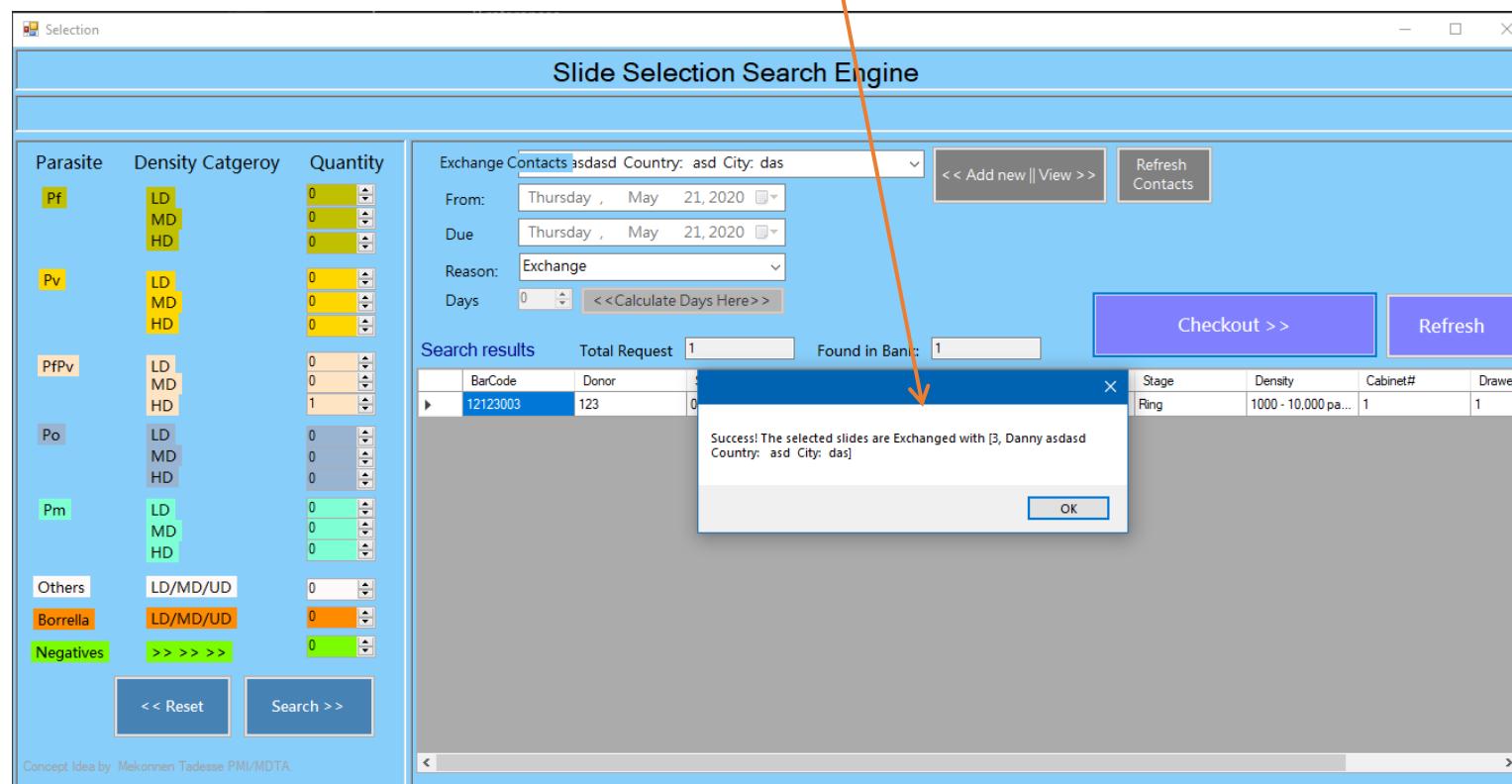
As shown in the record listing above we have searched and found 1 slide for exchange.

11. If Okay after pressing “**Checkout**” button. System will display a message if okay to proceed with checking out/exchange in this case with **Yes/No** dialog system. Pressing “**No**” will do nothing. See next for “**Yes**”



12. Final Step of the Exchange Checkout process is: When pressing "**Yes**" the system start processing the slides for checkout and exchange.

If Checking out was successful the system shows a **successful** message as shown below.



#### Finalizing Requirements Addressed:

- A. Slides that are selected as shown in **step 9** of this section will be reported as **Exchange** and printout will be displayed on the screen.

- B.** The slides will no longer be shown available for ***checkout/borrow/exchange*** and cannot be borrowed or replaced/searched again.

The screenshot shows a software application window titled "ExchangeCheckoutReportViewPort". The main report area displays the "EPHI - Exchanged Slides Report". The report header includes the date and time of exchange: "Exchanged with on Date: 5/21/2020 4:38:53PM". Below this, it shows the "Borrower Organisation: Danny asdasd asdas asd das" and the date "5/21/2020". A table lists exchanged slide details:

Barcode	Donor	Species	Density	Cabinet	Drawer	Box	IsExchanged
12123003	123	Falciparum	1000 - 10,000 par:	1	1	1	True

Below the table, there is a message box containing the text: "The Exchange has been completed by user" followed by a placeholder "Full name==Username=". At the bottom of the report area, there are page navigation controls: "Current Page No.: 1", "Total Page No.: 1", and "Zoom Factor: 100%".

**Print out report is generated for Exchanged Slides.**



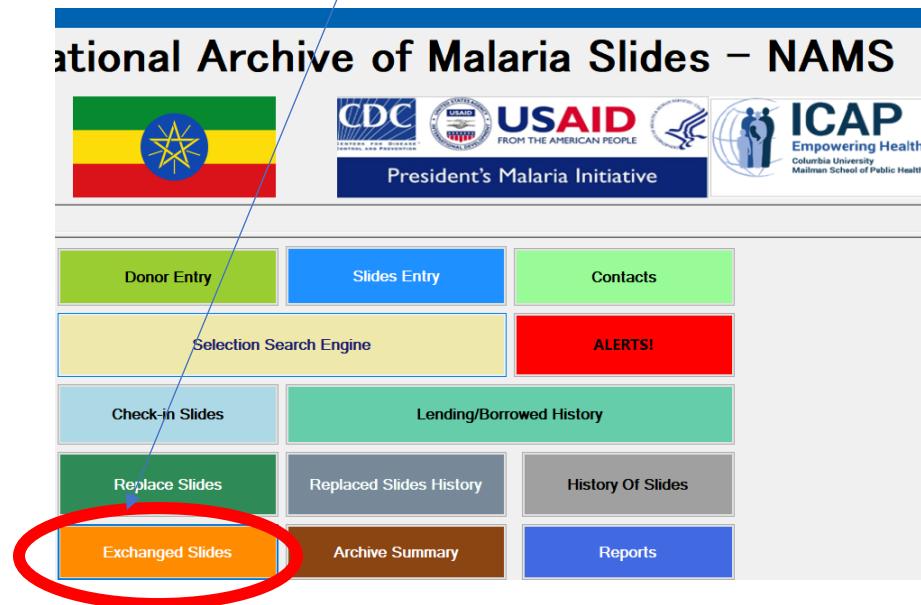
C. If you open to see the slides list page

ID	BarCode	Donor	Sequence	CCode	Specifics	SCategory	Stage	Density	LD
3	12123001	123	001	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
1002	12123333	123	333	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
1003	12123343	123	343	12	pfpv	Falciparum	Ring	1000 - 10,000 ...	123
1004	11001011	011	001	11	borella	Borella	None	Less than 1000	1000
1005	12121233	113	223	12	pfpv	Falciparum-V...	Ring	1000 - 10,000 ...	100

The exchanged slide will longer be seen on slides list page. Its history know. As we see below.

### 1.1.6 Incoming and Outgoing Exchanging Slides Views

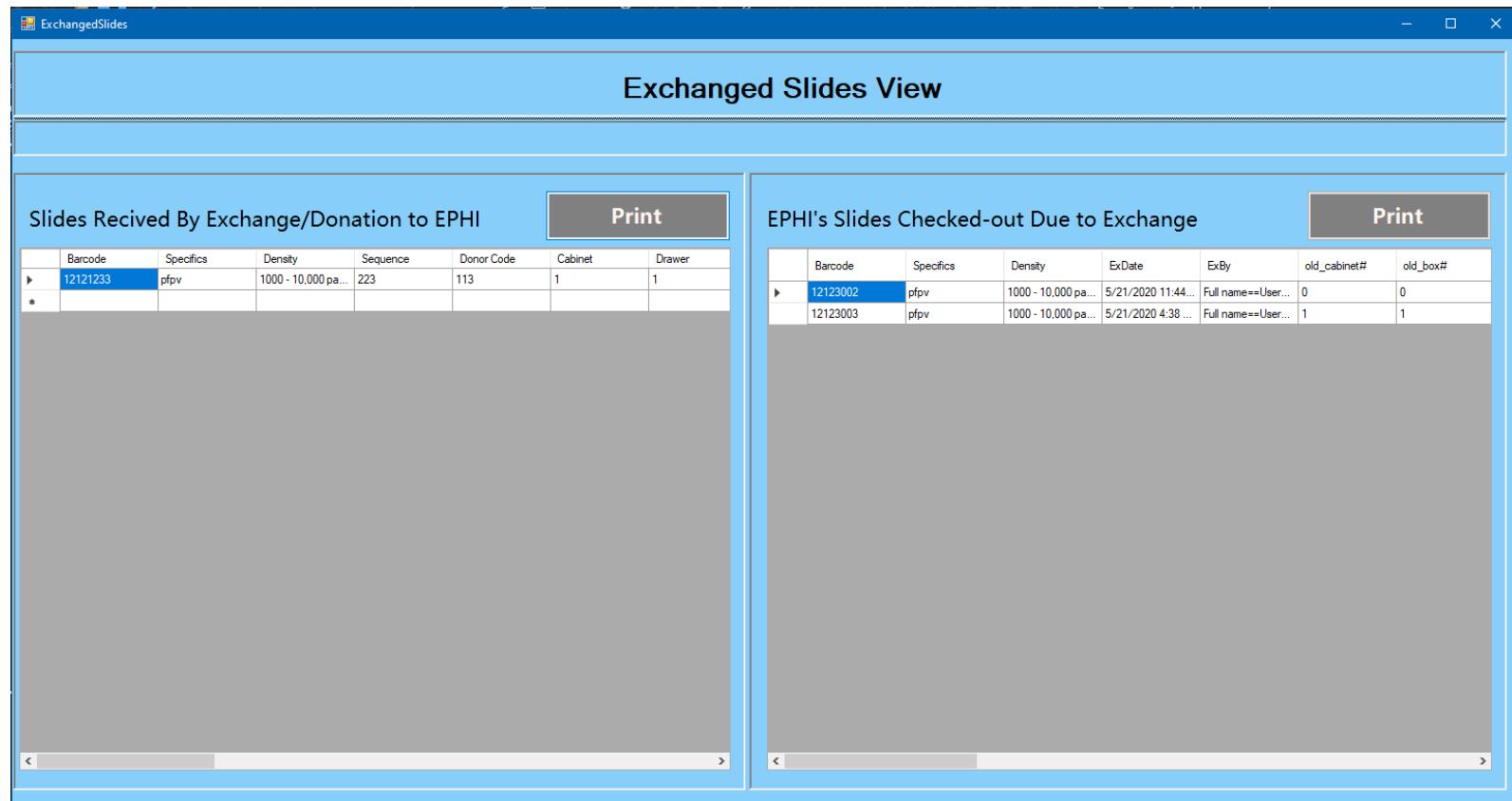
To see all **exchanges in/out** takes placed in the database. We have to launch the following form from the Main Menu:



The following form will appear after you click the “**Exchange Slides**” button. See below

In following screen, the **Exchange Slide View Form** shows you the list of slides coming in on the left and list of slides going out as Exchange for other country.

➤ **Exchanged Slides All List of Records View**



Requirements addressed:

- The ability to view all exchanged slides in one place
- Printouts using "Print" command button is available.
- Also by scrolling the data grid view horizontally shows more columns of the data elements as we will see on the next window.

Scrolling to view more columns about the list of record on the **Exchange Slide View**

- IsExchanged- is on when a slide is coming to slide bank by donation from other country
- IsExchangedOut is when a slide is going out of slide bank/donated to other country by exchange

The screenshot shows the "Exchanged Slides View" application window. It contains two main sections: "Slides Received By Exchange/Donation to EPHI" and "EPHI's Slides Checked-out Due to Exchange".

**Slides Received By Exchange/Donation to EPHI:**

	isReplaced	isOutExchange	isExchange	ContactName	Lname	Position	Country/Org
▶	...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ubang	Eksro	Lead
*		<input type="checkbox"/>	<input type="checkbox"/>				Ghana

**EPHI's Slides Checked-out Due to Exchange:**

	old_box#	old_drawer#	note	Stage	isActive	isOutExchanged	Comment
▶	0	0	Exchange	Ring	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HELP MAN
	1	1	Exchange	Ring	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HELP MAN

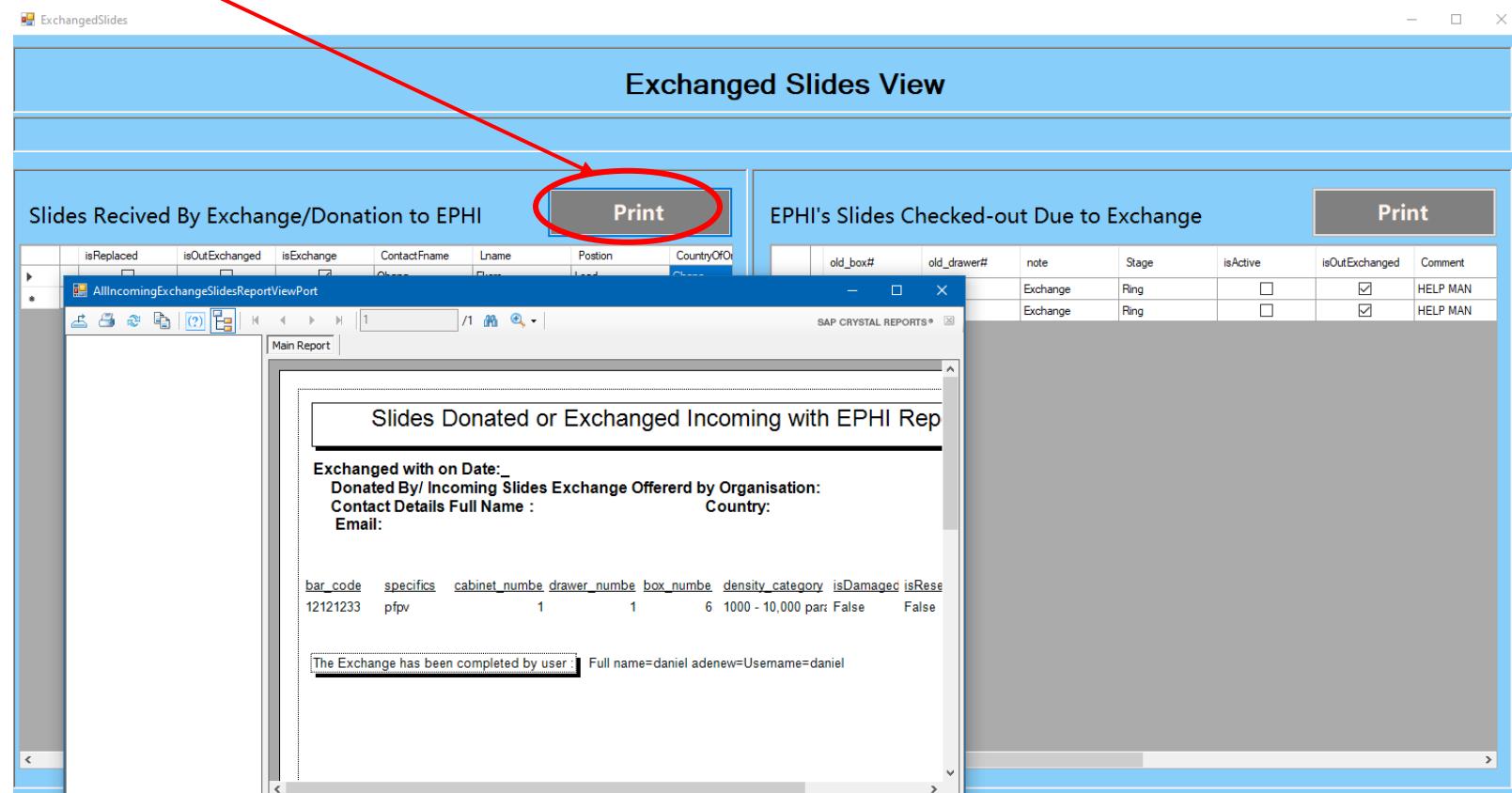
Red arrows point from the "isExchange" column in the left table to the "isOutExchanged" column in the right table. Red boxes highlight the scroll bars at the bottom of both tables.

Scroll here .

Next let see the print outs we get from "**Exchanged Slides View**" form shown above.

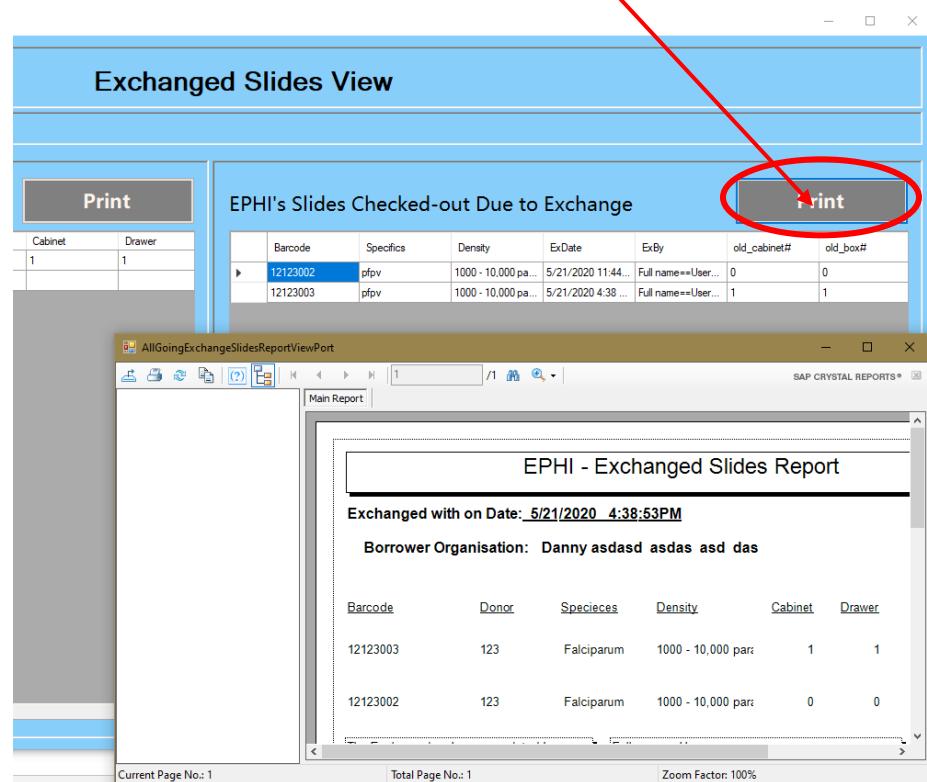
➤ **Printing out a report all Incoming and Outgoing Slide Exchange Data**

1. Press “Print” here to see incoming



On the same window of the Exchange Slide View Print out the exchanged slides list as follows.

2. Press “**Print**” here to see Out Going Slide Exchanges ( see slide Exchange part on Selection Search Engine on this docuemnt).



- There is one remaining operation or action from the exchange slides work process. i.e **seeing exchanged slides which are checkedout/out going as in slide history**. Let see the requirements addressed here.

## ➤ Viewing Slide Exchanged History

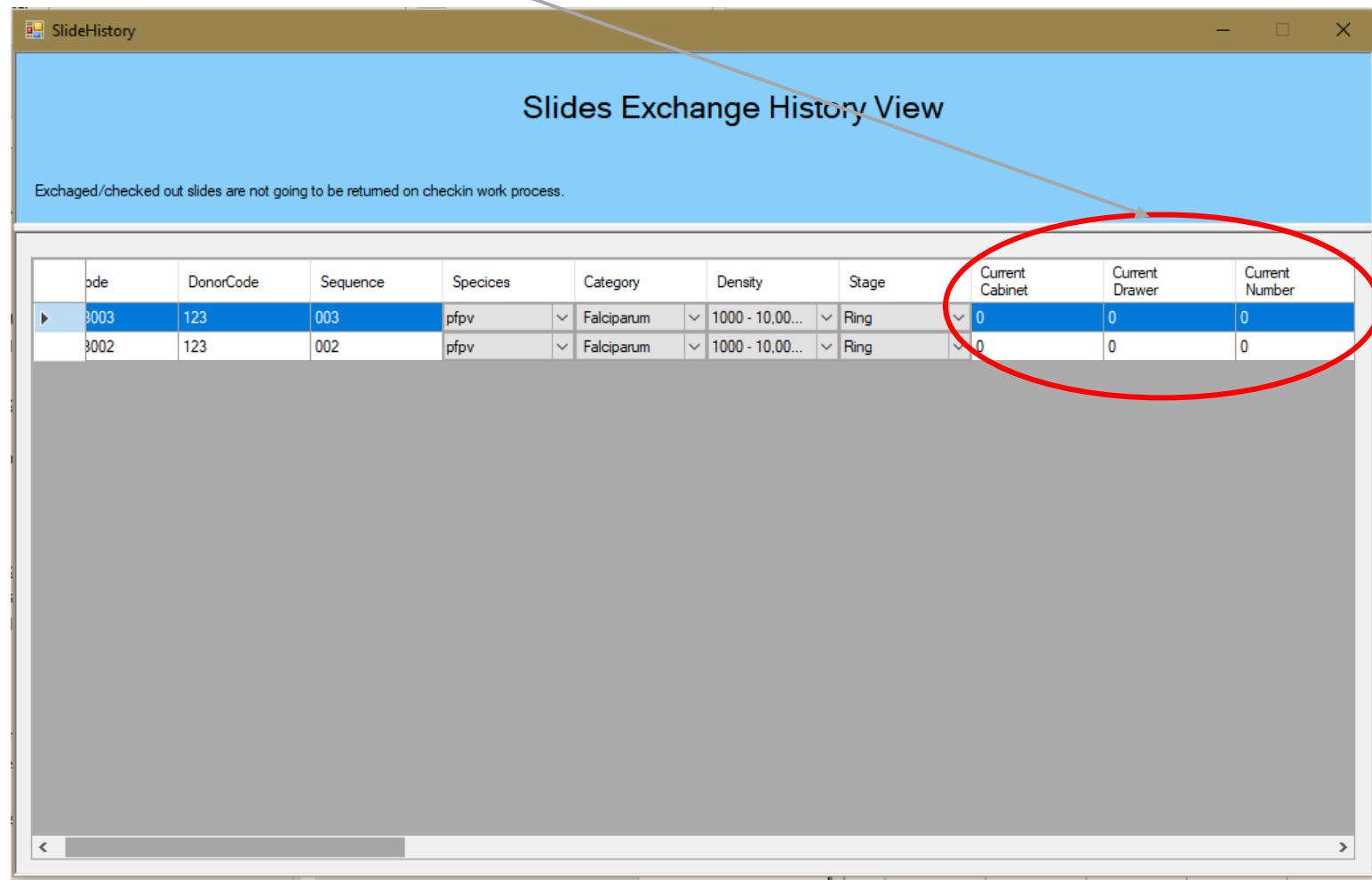


### Requirements Address:

- o Exchanged Slides or Slides that are checked out as Exchange should leave or unoccupidy from the cabinet. Their location data will be rested to 0,0,0 for cabinet, drawer and box identifications numbers.
- o Such that their former place is shown as history as old\_cabinet , old\_drawer and old\_box as history in the next window.

➤ **Viewing Slide Exchanged History for exchanged slides**

1. **See Current Location column below** related places are set to zero identification. To denote slide doesn't exist.



The screenshot shows a Windows application window titled "SlideHistory" with a sub-title "Slides Exchange History View". The main area displays a table of slide information. A red circle highlights the "Current Cabinet" column for the second row, indicating that the slide does not currently have a assigned cabinet location.

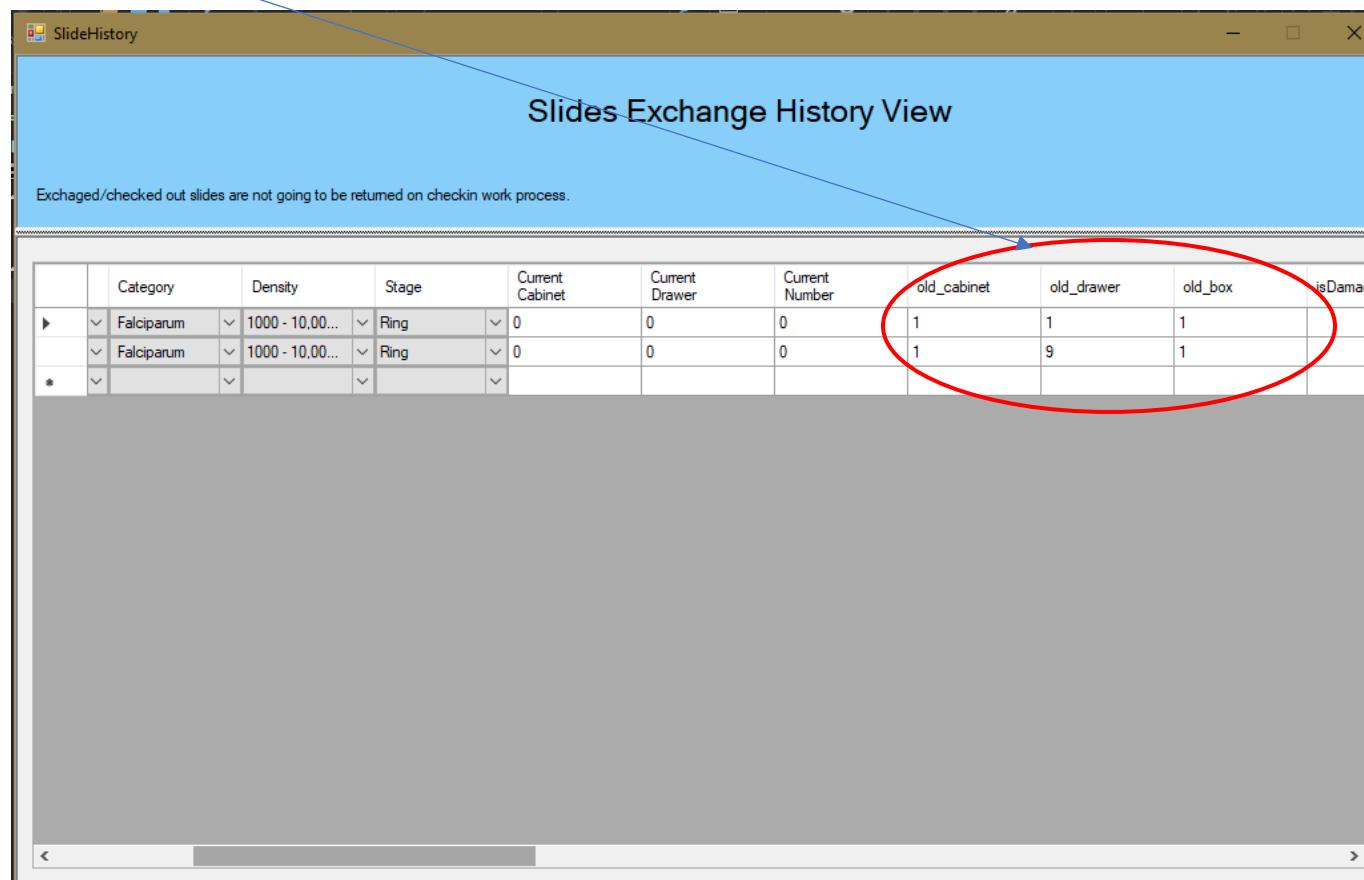
ID	Code	DonorCode	Sequence	Species	Category	Density	Stage	Current Cabinet	Current Drawer	Current Number
▶	3003	123	003	pfpv	Falciparum	1000 - 10,000	Ring	0	0	0
	3002	123	002	pfpv	Falciparum	1000 - 10,000	Ring	0	0	0

## 2. See the old location for reference.

Seeing old location helps to recall any discrepancy when arranging slides if any. So that we can come back to this and see what was being set on locations before or not.

In the slide history page , by horizontally scrolling we can see that other data columns for the exchanged slides.

i.e [**old\_cabinet , old\_drawer , old\_box**] column as shown in figure below.



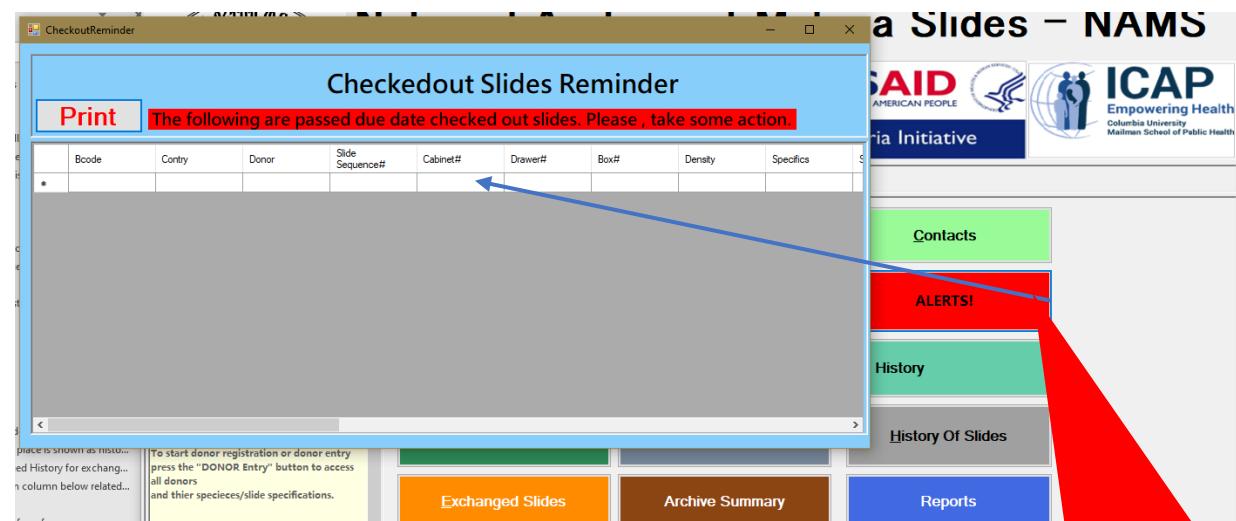
The screenshot shows a Windows application window titled "SlideHistory". The main title bar says "Slides Exchange History View". Below the title bar, a message states: "Exchaged/checked out slides are not going to be returned on checkin work process." The main area is a data grid with the following columns: Category, Density, Stage, Current Cabinet, Current Drawer, Current Number, old\_cabinet, old\_drawer, old\_box, and isDama. Three rows of data are visible:

	Category	Density	Stage	Current Cabinet	Current Drawer	Current Number	old_cabinet	old_drawer	old_box	isDama
▶	Falciparum	1000 - 10,000	Ring	0	0	0	1	1	1	
▼	Falciparum	1000 - 10,000	Ring	0	0	0	1	9	1	
*										

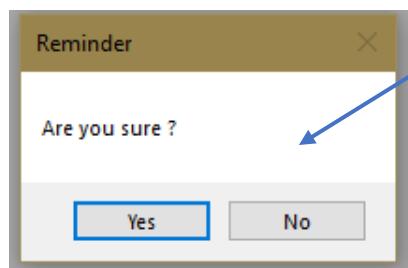
### 1.1.7 Check-in-Reminder Pag/Popup when you Login

Requirements addressed Here:

- Popup alert when a user logs in using
- Print due date passed borrowed slides
- List and show all due date passed slides



When user tries to close it. Shows **confirmation** message with **Yes/No**.



If there are any slides checked out and unreturned/passed due date.

Except Exchange Slides it will be seen listed in "CheckedOut Slides Reminder" form as shown above.

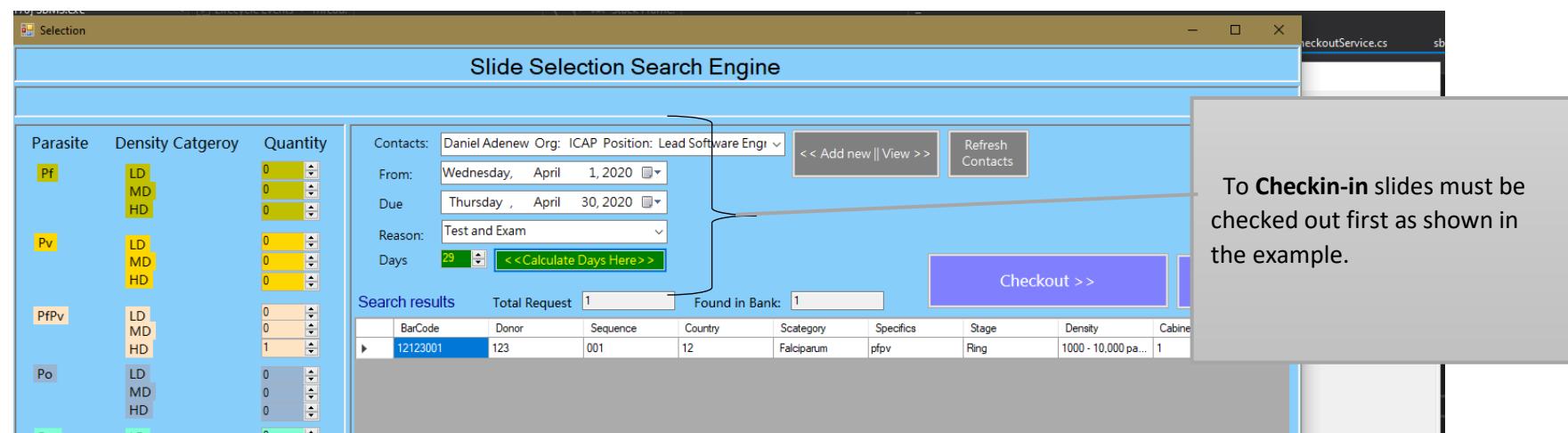
## 1.1.8 Check-in Data Processing (Returning Borrowed Slides)

When slides are checked out as we seen **on Section 1.1.5** using a reason for checkout as

1. Training
2. PPT
3. Exam

### Requirements Addressed Here:

- As per the requirements of EPHI , the slides are expected to return at given due date during checkout.



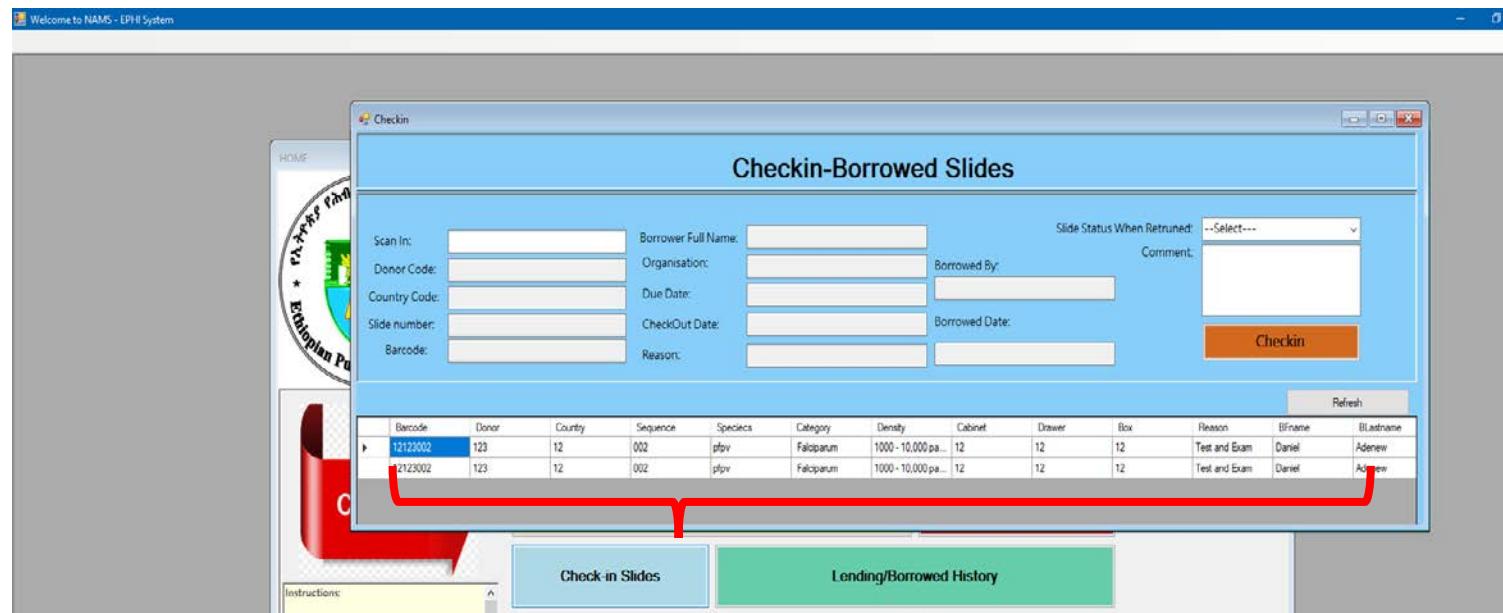
Lets remind Checkout process so that we can reference the action of performing the usual slide **check-in-checkout** process work flow using **MSBMS** software.

➤ **Perform a Checkin for Borrowed Slides**

To return a slide with borrowed status. We have to launch the Checkin-Slides Button on Main Menu of the MSBMS application as shown in figure below.



**1. By Default system show all Checkedout to be returned(Borrowed) slides as list as shown below.**



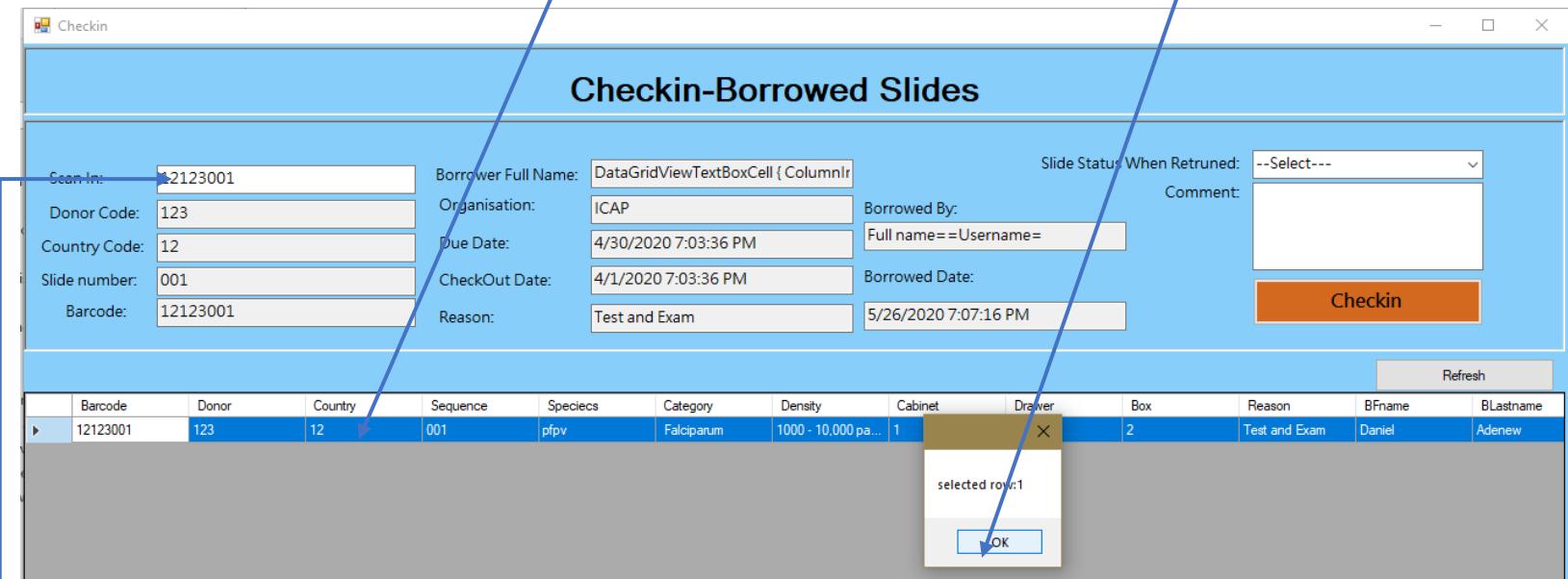
✓ Now , there are two method to perfrom a slide checkin operation.

- Just Selecting the row of the datagrid view or slides from the list by clicking in one of the records you would like to check-in
- By Manual Typing the Barcode into scan in or using directly a barcode scanner and pressing "Enter" key on your keyboard after typing all the code.

Let see them by example on below section with digram.

- i. Just Selecting the row of the datagrid view or slides from the list by clicking in one of the records you would like to check-in

Select the row as , system will hightlight in blue and show you **selecte row message box**. Press “Ok” , slide will be loaded on the upper input fileds of the fome as shown in this example.



- ii. By Manual Typing the Barcode into scan in or using directly a barcode scanner and pressing “Enter” key on your keyboard after typing all the code.

Type the code inside the input box and press “Enter” key on your keyboard.

Scan In:

Input the Barcode in the following box : system will load the slide details automatically.

2. Next stage is , if you selected the record correctly as shown. You **can complete the check-in slide process** by using the following steps.

- o When, you scan a barcode or select a row . The upper input box will be loaded automatically with the slide information selected.
- o But , Except "**Slide Status Returned**" DropDownBox and "**Comment**" box all are ready only (i.e **we can not modify slide's information here**).

The screenshot shows the 'Checkin-Borrowed Slides' window. At the top, there are several input fields: 'Scan In:' (12123001), 'Borrower Full Name:' (DataGridViewTextBoxCell { ColumnIndex }), 'Organisation:' (ICAP), 'Due Date:' (4/30/2020 7:03:36 PM), 'CheckOut Date:' (4/1/2020 7:03:36 PM), 'Barcode:' (12123001), 'Reason:' (Test and Exam), 'Borrowed By:' (Full name == Username =), 'Borrowed Date:' (5/26/2020 7:07:16 PM), and a 'Comment' dropdown menu. The 'Comment' dropdown is open, showing options: '--Select--', 'Okay' (which is selected), 'Damaged', and 'Missing'. A red circle highlights the 'Comment' dropdown. Below the input fields is a 'Checkin' button. At the bottom, there is a table with columns: Barcode, Donor, Country, Sequence, Species, Category, Density, Cabinet, Drawer, Box, Reason, BName, and BLastname. One row is visible in the table, corresponding to the input values above.

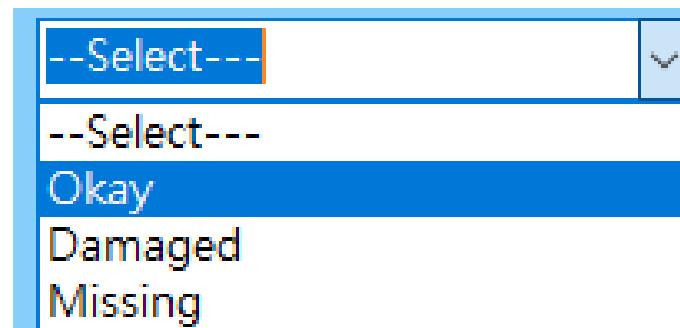
	Barcode	Donor	Country	Sequence	Species	Category	Density	Cabinet	Drawer	Box	Reason	BName	BLastname
▶	12123001	123	12	001	pfpv	Falciparum	1000 - 10,000 pa...	1	1	2	Test and Exam	Daniel	Adenew

### 3. Select the Slide Return Status for the slide being checked in.

Slide Return status can be the following :

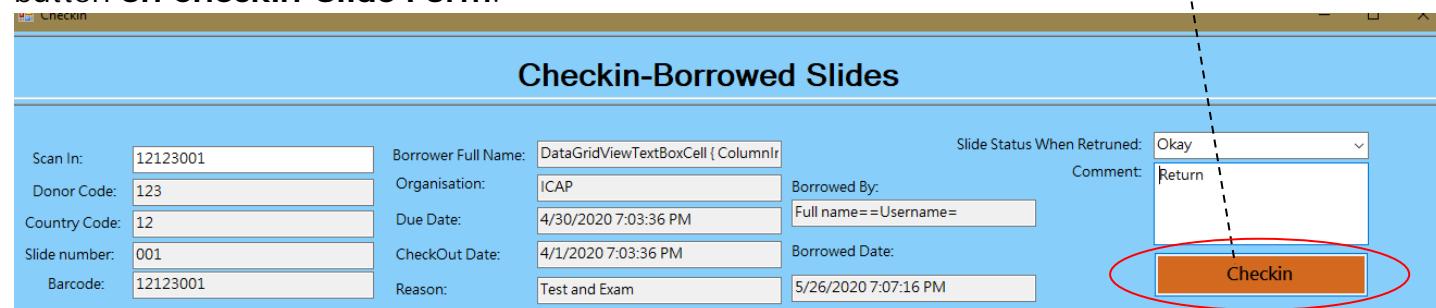
- A. Okay
- B. Damaged
- C. Missing

Requirements Addressed Here:



- Selecting "**Okay**" status will make the slide normally get back to the circulation with Borrowed status turned off.  
i.e we can search , borrow or exchange the slide if we checkin-as "**Okay**" status.
- Selecting "**Damaged/Missing**" status will make the slide normally get back to the circulation with Borrowed status turned off but they will not be available for search/selection/borrow/checkouts.

**i.e We can only get Damaged Slides for replacement.** Now , lets perform checkin by pressing "**Checkin**" button on Checkin-Slide Form.

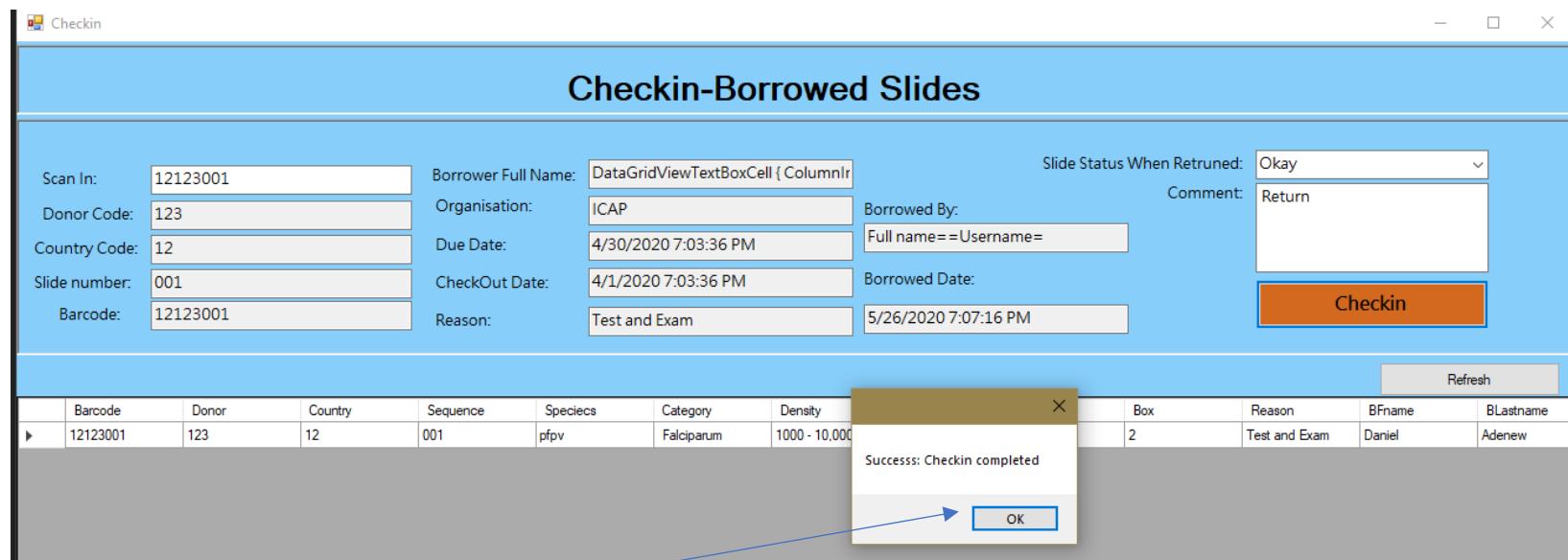


The form is titled "Checkin-Borrowed Slides". It contains the following fields:

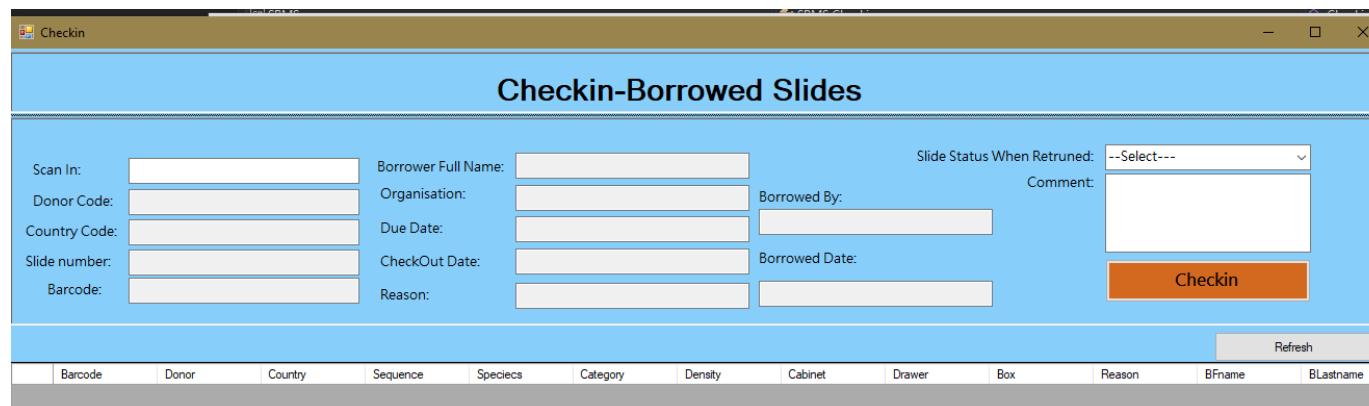
- Scan In: 12123001
- Donor Code: 123
- Country Code: 12
- Slide number: 001
- Barcode: 12123001
- Borrower Full Name: DataGridViewTextBoxCell (Column1)
- Organisation: ICAP
- Due Date: 4/30/2020 7:03:36 PM
- CheckOut Date: 4/1/2020 7:03:36 PM
- Reason: Test and Exam
- Slide Status When Retruned: Okay
- Borrowed By: Full name==Username==
- Borrowed Date: 5/26/2020 7:07:16 PM
- Comment: Return

A red oval surrounds the "Checkin" button at the bottom right of the form.

#### 4. System shows checkin **Succesfull message.**

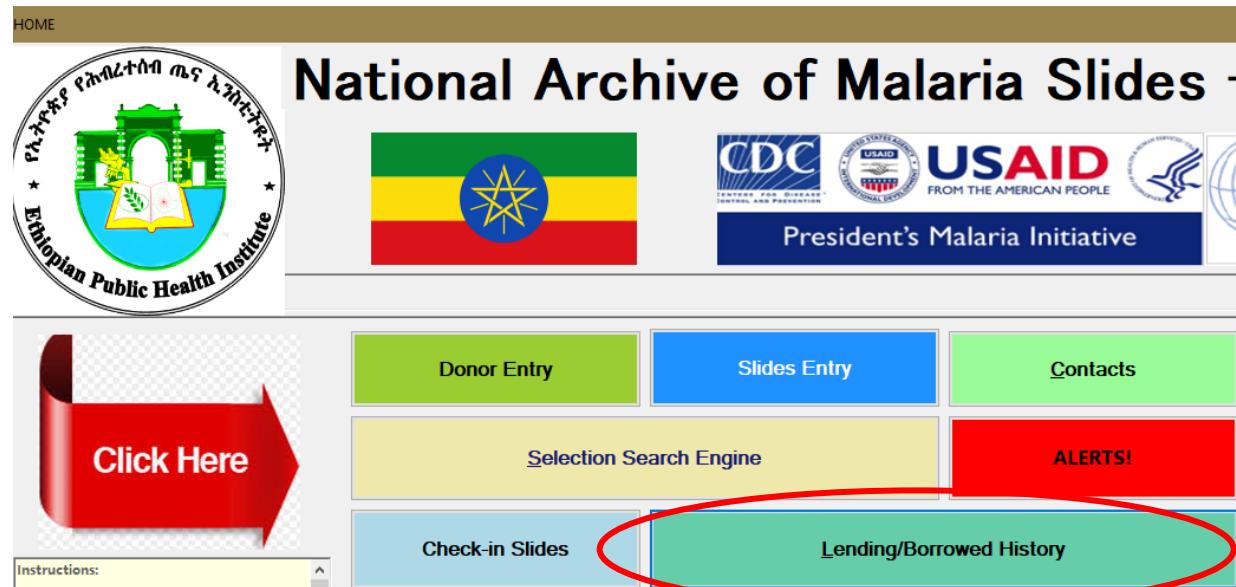


Press "**Okay**", System clears the checked-in slides from the list and input boxes. As shown figure below.



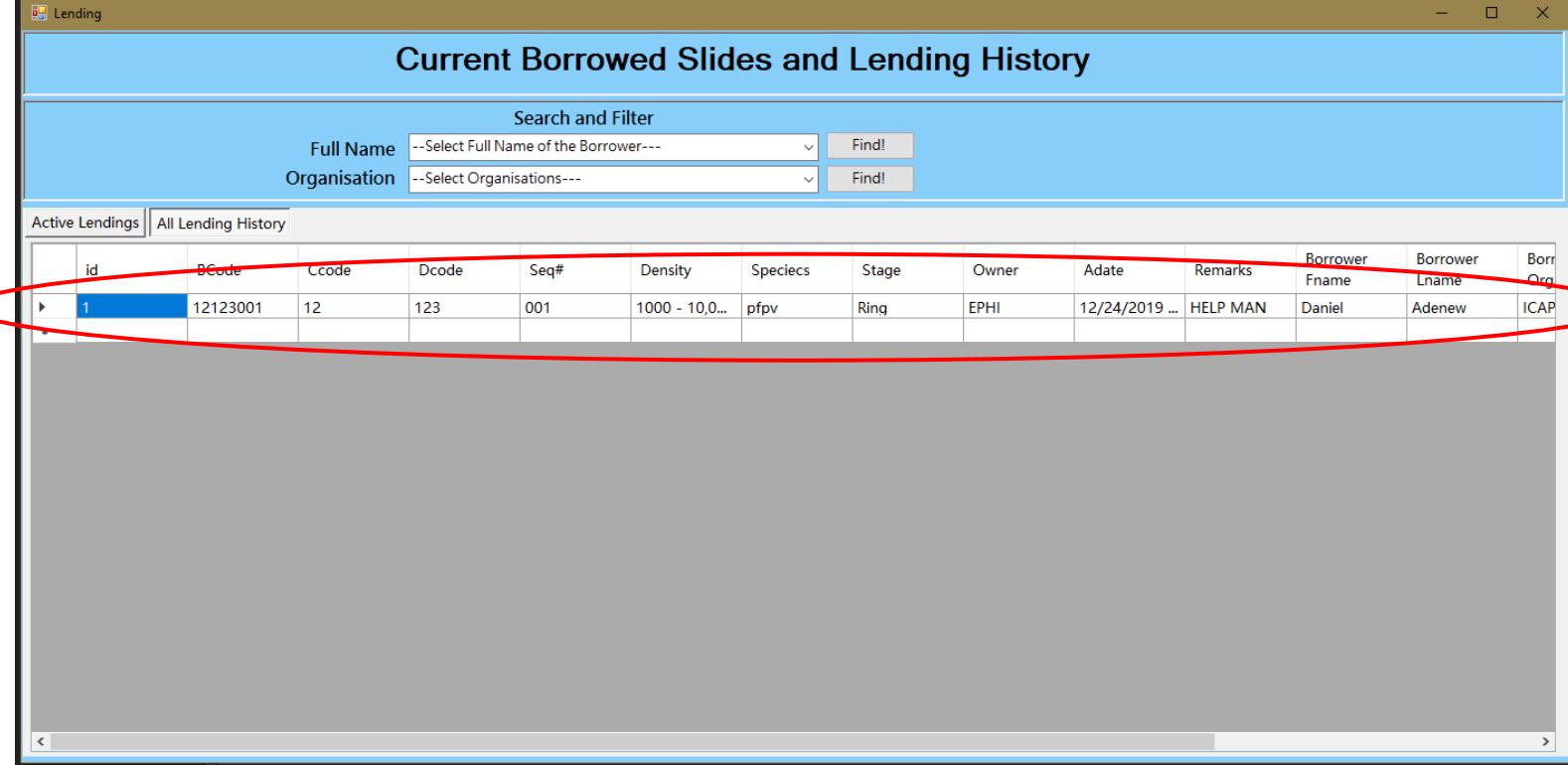
### 1.1.9 Viewing Lending/Borrowed History

To view previously borrowed and current lending history, press



Click on All Lending History Tab Button as follows. When the Current Borrowed Slides and Lending History Launchs.

- All “**check-in**” and “**checkout**” we performed will be recorded and kept in the system as history as follows.



The screenshot shows a Windows application window titled "Lending". The main title bar says "Current Borrowed Slides and Lending History". Below the title bar is a "Search and Filter" section with two dropdown menus: "Full Name" and "Organisation", each with a "Find!" button. Below the search section are two tabs: "Active Lendings" (selected) and "All Lending History". A large table below the tabs displays a single row of data, which is circled in red. The table has columns for: id, BCode, Ccode, Dcode, Seq#, Density, Species, Stage, Owner, Adate, Remarks, Borrower Fname, Borrower Lname, and Borrower Org. The circled row contains the following values:

id	BCode	Ccode	Dcode	Seq#	Density	Species	Stage	Owner	Adate	Remarks	Borrower Fname	Borrower Lname	Borrower Org
1	12123001	12	123	001	1000 - 10,0...	pfpv	Ring	EPHI	12/24/2019 ...	HELP MAN	Daniel	Adenew	ICAP