

Wills Eye Telemedicine: CDC Platform - User's Manual v. 1.0

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1. Administrative Area:

The most important section for managing every aspect of the CDC diagnostic platform is the Administrative Area.

The Administrative area is the control center of the entire platform, making this section the most important in terms of management and security. For this reason, Administrative accounts (and access) will be limited to IT specialists and high-level stakeholders.

In this module, Administrators can perform any of the following functions:

1.1.Clinic Administration:

- *Add/Browse Roles* - Roles are the definitions referring to each account (Reading Technician, Upload Technician, Printing Technician, etc). This section is technical in nature and it is where the developers enter the code defining each role. **This section should only be edited by technical developers.**

1.2.Global Administration:

- *Add/Browse Regions* – Regions are the geographical or organizational divisions under which clinics or reading centers can be organized.
- *Add/Browse Users* – This is the area where individual user accounts can be added. Users will be associated to a specific region/reading center and will be assigned one or more roles

1.3.Region Administration:

- *Add/Browse Clinics/Reading Centers* – The actual name and contact information to the individual clinic or reading center in a particular Region

1.4.Setup

To set up a new Region or Reading Center and subsequent users, please provide the Account managers with the following information:

Region: Name, Description

Reading Center: Name, Website, State, Zip Code, Main Phone, Main Address, City, Region (from above), Clinic setup (CDC, Diabetic, etc.), Clinic Design (upload logo, upload CSS file for new design).

User: Username, Email, First Name, Last Name, Account Setup (User Profile, User Role), Contact Information (Address, City, State, Zip, Country, Phone, Fax, Cell Phone, Mobile Carrier). Cell phone information is for SMS notifications.

2. Uploading Accounts:

The CDC diagnostic platform can manage different functions for Telemedicine. An important position in the ROP-Telemedicine workflow is the upload technician. Upload technicians are directly associated with individual Reading Centers and this acts as a filter in that each upload account can only view patients uploaded to their corresponding clinic.

2.1. Uploading Images: Default Page

Logging in with an Upload account will bring the user to the default page with the patient list, designated as either "Read" or "Unread". On this template (see Figure 1), the user can search for patients, view status, edit information on existing patients, or "Add" a new patient.

The most common activity on this screen, will be adding new patients for the Reading Technician to read.

The screenshot displays the 'Browse Patients' interface. At the top, the Wills Eye Institute logo is on the left, and navigation links for 'Email support', 'Support type', 'Welcome: Reading Tech', 'Clinic: WE2', 'My Profile', and 'Log Off' are on the right. The left sidebar contains a 'ROP' menu with 'Patient', 'Browse', and 'Add' options, a 'Patient Search' box, and a calendar for October 2011. The main content area has a 'Browse Patients' header with a 'Reload' button and a 'Show patients:' dropdown set to 'Unread'. Below this is a table with the following data:

MRN	Date Of Service	First Name	Last Name	DOB (mm/dd/yyyy)	Status	PIP	Actions
146	03/09/2011	Jonathan	Doe	05/02/1962	UR	Dr. Federman	[Icons]

Figure 1. Default Upload template

2.2. Uploading Images: Add New Patient

On the left-hand menu, click on the "Add" link to go to the Patient demographic and medical information upload module (Figure 2).

Enter all required (in red) demographic and medical information.

The screenshot shows the 'Add Patient' form in the Wills Eye Institute system. The form is titled 'Browse Patients' and contains several sections:

- Demographic Information:** Includes fields for First Name, Last Name, DOB (mm/dd/yyyy), Patient ID (with a note 'THIS IS THE MRN'), Tech ID, Clinic (dropdown menu showing 'WE2'), Clinic Code, Gender (dropdown menu showing 'Female'), and Race/Ethnicity (dropdown menu showing 'White, non-Hispanic').
- Medical Information:** Includes a Date of Service (mm/dd/yyyy) field, Visual Acuity (Snellen) fields for Left Eye and Right Eye (both showing '20/10'), and a section for Lens Status with checkboxes for 'No known cataract OD/OS', 'Cataract present OD/OS', and 'Cataract removed OD/OS'. There is also a section for 'Wears Contact Lens' with checkboxes for 'Soft Lens Present/Removed OD/OS' and 'Hard Lens Present/Removed OD/OS'. A 'Present Diagnosis' section includes a checkbox for 'Diabetes'.
- Patient Images:** A section titled 'Patient Images' with a status field showing 'Waiting for Patient Information.'

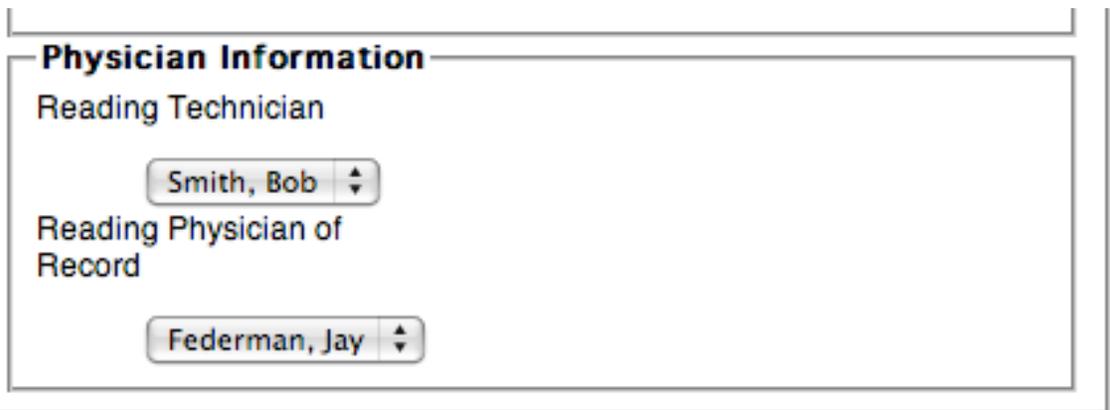
The form also features a 'SAVE' button and a 'Cancel' button at the top right. A yellow banner at the top of the form area states 'Asterisk (*) denotes a required field.'

Figure 2. Add Patient

2.3. Uploading Images: Designate Reading Technician and Principal Investigating Physician (PIP)

After the demographic and medical information has been entered, a Reading Tech and PIP must be selected. Pay close attention to this part since the correct Reading Technician assignment is important.

To select the Reading Tech and PIP, use the pull-down menu (Figure 3).



Physician Information

Reading Technician

Smith, Bob

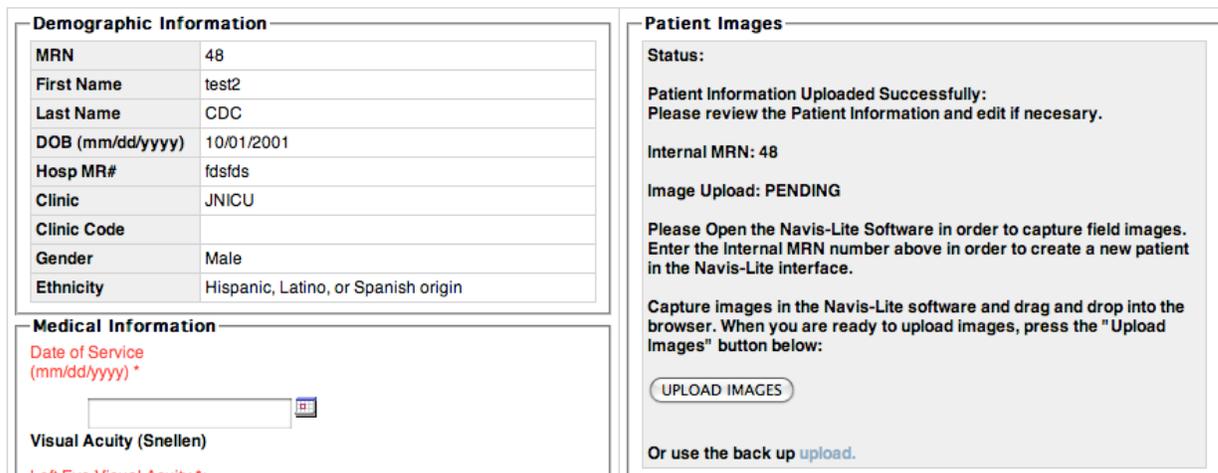
Reading Physician of Record

Federman, Jay

Figure 3. Add Physician Information

2.4. Uploading Images: Patient Images

Once the correct Patient Demographic information, Medical Information, and Physician information has been added, press the "save" button. You will now see a "Read Only" version of the Demographic and Medical Information AND an MRN (Patient ID) plus further instructions. The MRN is used to initiate image capture on the Navis-Lite software and camera (Figure 4).



Demographic Information	
MRN	48
First Name	test2
Last Name	CDC
DOB (mm/dd/yyyy)	10/01/2001
Hosp MR#	fdsfds
Clinic	JNICU
Clinic Code	
Gender	Male
Ethnicity	Hispanic, Latino, or Spanish origin

Medical Information

Date of Service (mm/dd/yyyy) *

Visual Acuity (Snellen)

Left Eye Visual Acuity *

Patient Images

Status:

Patient Information Uploaded Successfully:
Please review the Patient Information and edit if necessary.

Internal MRN: 48

Image Upload: PENDING

Please Open the Navis-Lite Software in order to capture field images. Enter the Internal MRN number above in order to create a new patient in the Navis-Lite interface.

Capture images in the Navis-Lite software and drag and drop into the browser. When you are ready to upload images, press the "Upload Images" button below:

UPLOAD IMAGES

Or use the back up [upload](#).

Figure 4. Add images through the Upload Interface

2.5. Uploading Images: Process overview

The upload process is outlined below (Figure 5.). The Nidek camera software settings should be changed in order to output DICOM images. The images will be “dragged and dropped” into the browser interface where they will transfer and appear. A “Verify” button, simply confirms that the images uploaded correctly (visual check) and takes the Tech back to the “Patient Browse” page. **NOTE* the DICOM upload will ONLY work with DICOM images generated by the Navis-Lite/Nidek camera and software.**

WET PH2.5 CDC: Upload Process

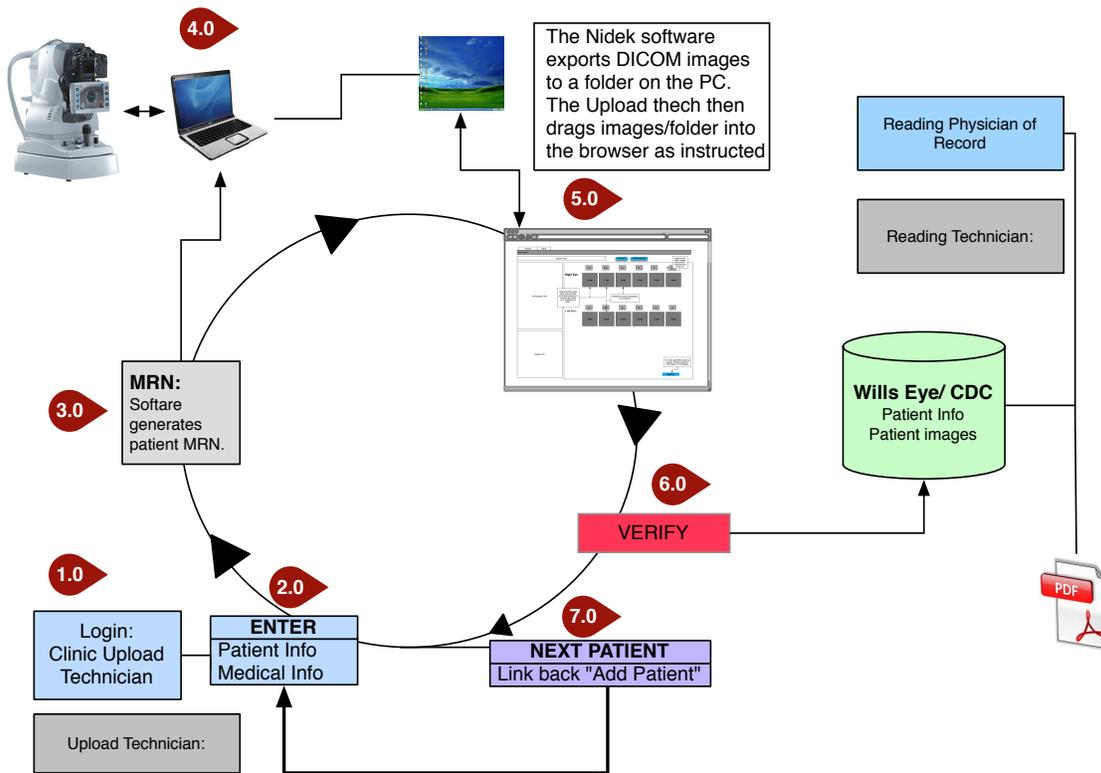


Figure 5. Image upload process

2.6. Uploading Images: Browser Upload

Once images have been taken using the Nidek camera and the Navis-Lite software, resulting DICOM images will be exported to a designated desktop folder. Go back to the upload page (Figure 5 above) and press the "Upload Images" button. You will now see the browser-based Upload interface in your browser (Figure 6.).

The screenshot shows the Wills Eye Institute web application. On the left is a sidebar with navigation options: 'Patient' (Browse, Add), 'Patient Search' (Search), and a calendar for October 2011. The main content area is titled 'Upload Images' and features a table with patient information:

MRN	Date Of Service	First Name	Last Name	DOB (mm/dd/yyyy)	Reading Center	Gender	Race/Ethnicity
48	03/09/2011	Jonathan	Doe	05/02/1962	WE2	Male	Puerto Rican

Below the table are two sections for image uploads:

- RIGHT EYE**: Three dashed boxes labeled 'EXT', 'TEMP', and 'NAS', each with the text 'drop a file or click to here'.
- LEFT EYE**: Three dashed boxes labeled 'EXT', 'TEMP', and 'NAS', each with the text 'drop a file or click to here'.

Figure 6. Upload images by dragging them into this browser interface

2.7. Uploading Images: Drag and Drop

Drag images from desktop folder to the browser. Images will upload (placement will be determined by DICOM data such as MRN and time stamp for sequence). Review uploaded images and click on the "Verify" button to confirm. This lets the system know that the images are correct (Figure 7) and returns you to the "Browse" page
NOTE* This feature is only supported in FireFox, Chrome, and Safari Browsers.

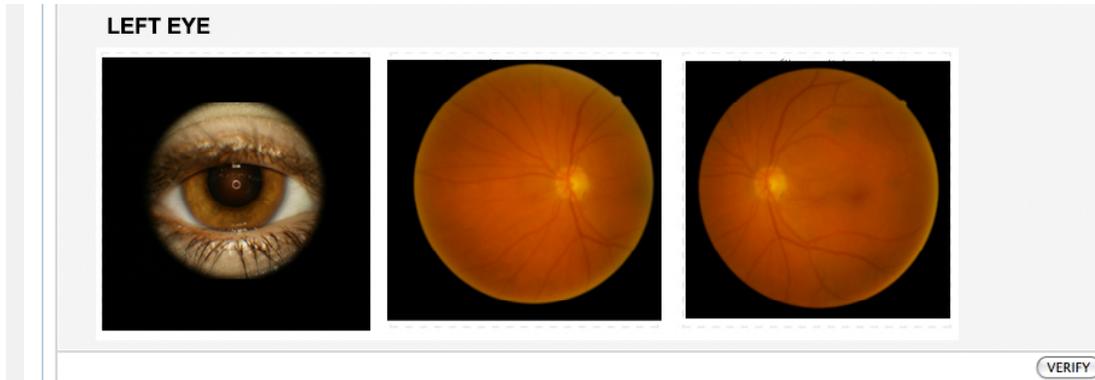


Figure 7. Review images and "Verify"

2.8. Uploading Images: Edit/Review

On the main "Browse" page, the right-hand column of the patient list contains a fixed set of identical actions for each patient.
(Figure 8.)

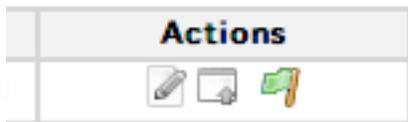


Figure 8. Actions

Actions:

- *Modify (pad/pencil)* – Edit Information fields for each patient.
- *Upload New Exam (window+ arrow)* – Allows Tech to "re-read" the exam. This generates a NEW report (different MRN)
- *Disable (flag)* – This essentially turns the patient "off". Disabled patients can be enabled at the administrative level.

3. Reading Accounts

There are two types of Reading accounts – Reading Technicians, and Principal Investigating Physicians (PIP). Reading Technicians are specific to CDC Reading centers and they are responsible for the primary reading of the patient images.

Principal Investigating Physicians (PIP) are the overseeing Physicians responsible for all data and report generation within regions (multiple CDC reading centers). These accounts are limited to “Read Only” privileges. These accounts allow the user to view images and see the final report as a .PDF file.

Reading accounts are set up by the administrators and managed by the Upload workflow.

3.1. Reading Technician: Unread Patients

The Reading Tech accounts default to the “Unread” patient list (Figure 9). There is a single action button – “View All Photo Sessions” (eye). The template uses the same toggle as the Uploading accounts to filter the patient list (Unread, Read, All).

Wills Eye Institute | Email support | Support type | Welcome Dr. Federman | My Profile | Log Off

ROP

- » Patient
- » Browse

Patient Search

October 2011

S	M	T	W	H	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Browse patients

Browse Patients

Reload

Show patients:
Unread

MRN	Date Of Service	First Name	Last Name	DOB (mm/dd/yyyy)	Status	CDC Clinic	PIP	Actions
146	03/09/2011	Jonathan	Doe	05/02/1962	UR	WE2	Dr. Federman	View All Photo Sessions
66	10/21/2009	Jane	Smith	02/21/1958	UR	WE4	Dr. Federman	View All Photo Sessions

Figure 9. Reading Technician – home page

3.2. Reading Technician: Reading Fields

The reading chart (below the Patient Demographic information) defaults to the Right>External field. After completing a field, either click on the field name in []. Or you can roll over either end (right or left) of the image and an arrow will hover. Clicking on this arrow will move you to either the next or previous image depending on the direction of the arrow (Figure 10.).

Advancing to the next field automatically saves your findings. All findings may be changed as many times as desired BEFORE saving the exam in "Interpretation".

The screenshot displays the Wills Eye Institute Reading Technician interface. At the top, the Wills Eye Institute logo is on the left, and navigation links for 'Email support', 'Support type', 'Welcome: Reading Tech', 'Clinic: WE2', 'My Profile', and 'Log Off' are on the right. The main interface is divided into several sections:

- Patient Information:** A table containing demographic data:

Last Name	CDC	First Name	test2	Patient ID	00001	DOB (mm/dd/yyyy)	10/01/2001
Location	WE1	Tech. ID	023	Clinic Code		Gender	Male
Race / Ethnicity	Hispanic, Latino, or Spanish origin						
Principal Investigator	Jay Federman M.D.						
- Medical Information:** A table containing clinical data:

Date of Service (mm/dd/yyyy)	10/19/2011		
RE Visual acuity	20/50	Lens Status OD	No known cataract
LE Visual acuity	20/100	Lens Status OS	No known cataract
Wears Contact Lens OD	Soft Lens Present	Present Diagnosis	
Wears Contact Lens OS	Soft Lens Present	Medications	
Labs: FBSmg/dL		Labs: HbA1C %	
Comments			
- Control Panel:** Includes 'Unreadable' and '[Interpretation]' buttons, and navigation for 'Right' and 'Left' eye fields with sub-fields like [Ext], [Temp], and [Nas].
- Reading Field:** Shows a large image of a right eye. To the right of the image is a list of findings for the 'Ext' field:
 - Significant Cataract
 - Significant Corneal Anomaly
 - Significant Iris Findings
 Below this is a section for 'Findings' and 'Other retinal findings'.
- Cumulative findings:** A text area at the bottom showing 'Ext: No apparent abnormalities.'

Figure 10. Reading Technician – Reading Field

3.3. Reading Technician: Interpretation

The Interpretation Chart (Figure 11.) is the last check and opportunity for editing before saving the report. Images on the left can be replaced with an image from any of the small thumbnails that are visible underneath the larger image. Comments or recommendation fields can be edited and the changes will carry through to the final report.

When the reader has finalized the report, click on the "Save" button you can now view the final report as a PDF and it has been saved in the database.

The screenshot displays the Wills Eye Institute Reading Technician Interpretation Chart. The interface includes a navigation sidebar on the left with options for Patient, Patient Search, and a calendar for October 2011. The main content area is divided into several sections:

- Patient Chart:** Contains tabs for 'Browse patients', 'View All Photo Sessions: MRN 48', and 'Interpretation: MRN 48'.
- Patient Information:** A table with demographic data:

Last Name	CDC	First Name	test2	Patient ID	00001	DOB (mm/dd/yyyy)	10/01/2001
Location	WE1	Tech. ID	023	Clinic Code		Gender	Male
Race / Ethnicity	Hispanic, Latino, or Spanish origin						
Principal Investigator	Jay Federman M.D.						
- Medical Information:** A table with clinical data:

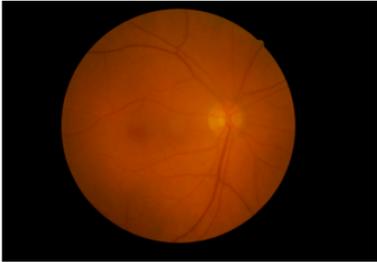
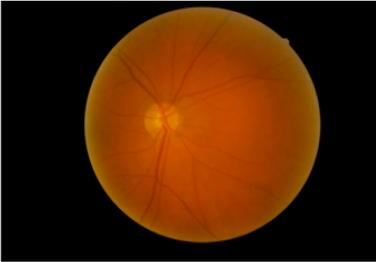
Date of Service (mm/dd/yyyy)	10/19/2011		
RE Visual acuity	20/50	Lens Status OD	No known cataract
LE Visual acuity	20/100	Lens Status OS	No known cataract
Wears Contact Lens OD	Soft Lens Present		
Wears Contact Lens OS	Soft Lens Present		
Labs: FBSmg/dL		Labs: HbA1C %	
Comments			
- Photographic Imaging Report - Right Eye:**
 - External Anterior Findings are Suggestive of:
 - Cataract may be present
 - Diabetic Retinopathy Findings are Suggestive of:
 - No Apparent Diabetic Retinopathy
 - No apparent diabetes-related maculopathy present
 - Other Retinal Findings are Suggestive of:
 - Hypertensive Changes present
- Photographic Imaging Report - Left Eye:**
 - External Anterior Findings are Suggestive of:
 - Cataract may be present
 - Diabetic Retinopathy Findings are Suggestive of:
 - No Apparent Diabetic Retinopathy
 - No apparent diabetes-related maculopathy present
 - Other Retinal Findings are Suggestive of:
 - Hypertensive Changes present
- Diabetic Retinopathy Recommendations:**
 - Re-evaluate in twelve months
- Other Recommendations:**
 -

Figure 11. Reading Technician – Interpretation

3.4. Reading Technician: Report

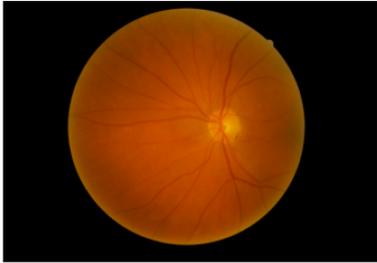
Final Report is saved as a .PDF (Figure 12)

Wills Eye Institute		Diabetic Retinopathy Report	
Patient Information			
Last Name	Rasthabanh	First Name	Rasthabanh
DOB (mm/dd/yyyy)	07/05/2011	Gender	Female
Location of Service	WE1	Technician ID	22234
Date of Service (mm/dd/yyyy)	08/23/2011	RE Visual acuity	20/25
Principal Investigator:	Jay Federman M.D.	LE Visual acuity	20/25
Patient ID		WE1 - 000001	
Race/Ethnicity		African American	

Right Eye- Temporal Field	Right Eye - Nasal Field
	

Photographic Imaging Report: Right Eye

External Anterior Segment Findings are Suggestive of:	Significant cataract may be present
Diabetic Retinopathy Findings are Suggestive of:	Unreadable - No apparent DR
	No apparent diabetes-related maculopathy is present
Other Retinal findings are Suggestive of:	Hypertensive Changes are present.

Left Eye - Nasal Field	Left Eye- Temporal Field
	

Photographic Imaging Report: Left Eye

External Anterior Segment Findings are Suggestive of:	Significant cataract may be present
Diabetic Retinopathy Findings are Suggestive of:	Unreadable - No apparent DR
	No apparent diabetes-related maculopathy is present
Other Retinal findings are Suggestive of:	Hypertensive Changes are present.

Diabetic Retinopathy Recommendations	Re-evaluate in twelve months
Other Recommendations	

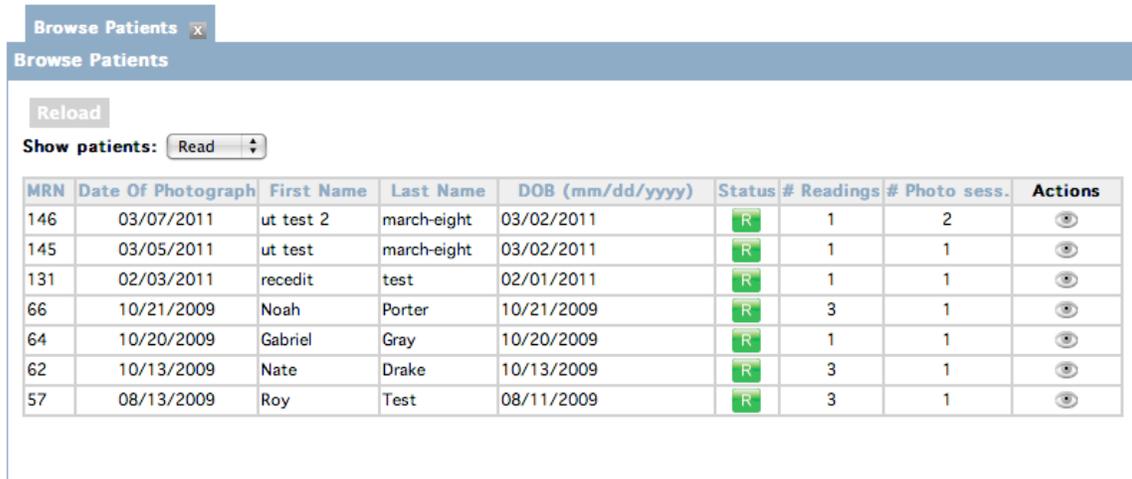
Read and certified on 08/24/2011 - 06:34:10 by: Jay L. Federman, MD – Carl H Park, MD | Wills Eye Institute Reading Center - WillsEyeTelemedicine.com

Ocular Imaging Assessment by Photographic Documentation is not a Substitute for a Comprehensive Ophthalmic Evaluation by an Eye Care Provider

Figure 12. Final Report

3.5. Reading Technician: Read Patients

By using the “Show patients” toggle and setting it to “Read”, the patient list can be filtered by patients that have already been examined (Figure 13).



The screenshot shows a web interface titled "Browse Patients". At the top, there is a "Reload" button and a "Show patients:" dropdown menu set to "Read". Below this is a table with the following columns: MRN, Date Of Photograph, First Name, Last Name, DOB (mm/dd/yyyy), Status, # Readings, # Photo sess., and Actions. The table contains seven rows of patient data, all with a green "R" in the Status column.

MRN	Date Of Photograph	First Name	Last Name	DOB (mm/dd/yyyy)	Status	# Readings	# Photo sess.	Actions
146	03/07/2011	ut test 2	march-eight	03/02/2011	R	1	2	
145	03/05/2011	ut test	march-eight	03/02/2011	R	1	1	
131	02/03/2011	recedit	test	02/01/2011	R	1	1	
66	10/21/2009	Noah	Porter	10/21/2009	R	3	1	
64	10/20/2009	Gabriel	Gray	10/20/2009	R	1	1	
62	10/13/2009	Nate	Drake	10/13/2009	R	3	1	
57	08/13/2009	Roy	Test	08/11/2009	R	3	1	

Figure 13. Reading Technician – Read Patients

3.6. Reading Technician: Read Patients Details

When a patient has been read, this section contains many more options. The bottom examination was read and the Reading Physician is presented with a number of different options at this stage.

Actions:

- *Re-read Exam* – Takes user to the Reading Chart. The exam is read again as a new session
- *View Chart* – Shows the reading charts, but they are “read-only” and may not be edited
- *View Interpretation* – View “Read-Only Version of the interpretation
- *View PDF Report* – View PDF copy of the final report

3.7. Reading Account: PIP

The Principal investigating Physician account is similar to the Reading technician with some important differences. PIP accounts function at the “Regional” level. This means that they can view patient lists from any of the CDC Reading centers within the region they are assigned to. PIP accounts can switch to other reading centers in their region by using the CDC reading center pull-down that is found at the top of the page. This feature IS ONLY available for PIP accounts (Figure 14). PIP accounts will only have “Read Only” accounts and will not be able to edit patients or examinations.

The screenshot shows the Wills Eye Institute CDC Platform interface. At the top, there is a header with the Wills Eye Institute logo, a support link, a welcome message for Dr. Federman, a clinic selector (WE2), and user profile options. The main content area is titled 'Browse Patients' and features a 'Reload' button and a 'Show patients:' dropdown menu set to 'All'. Below this is a table of patient records.

MRN	Date Of Service	First Name	Last Name	DOB (mm/dd/yyyy)	Status	CDC Clinic	RPR	Actions
147	03/09/2011	Brian	Jones	05/02/1962	R	WE2	Dr. Federman	👁️ 🗑️
146	03/09/2011	Jonathan	Doe	05/02/1962	UR	WE2	Dr. Federman	👁️
66	10/21/2009	Jane	Smith	02/21/1958	UR	WE4	Dr. Federman	👁️
145	10/21/2009	Joan	Blue	02/21/1958	R	WE2	Dr. Federman	👁️ 🗑️
144	03/09/2011	Cindy	Brown	03/12/1962	R	WE2	Dr. Federman	👁️ 🗑️
65	10/21/2009	Roger	Smith	02/21/1970	R	WE4	Dr. Federman	👁️ 🗑️
64	03/09/2011	Samantha	Doe	12/02/1969	R	WE4	Dr. Federman	👁️ 🗑️
143	10/21/2009	Robert	Smith	02/21/1975	R	WE4	Dr. Federman	👁️ 🗑️
61	03/09/2011	Jonathan	Smith	05/02/1960	R	WE4	Dr. Federman	👁️ 🗑️
142	10/21/2009	Jarre	Due	02/21/1958	R	WE4	Dr. Federman	👁️ 🗑️
141	03/09/2011	Jonathan	Doe	05/02/1962	R	WE2	Dr. Federman	👁️ 🗑️
63	10/21/2009	Jane	Smith	02/21/1958	R	WE4	Dr. Federman	👁️ 🗑️

Figure 14. PIP

4. CDC Technician: Data Mining