

MCIR USER REFERENCE GUIDE:

2D VACCINE BARCODES

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Information and instructions included in this reference guide periodically change with system updates and are subject to annual review. Please be advised: Images and directions may no longer replicate current system function.

THINGS TO KNOW ABOUT 2D VACCINE BARCODE SCANNING

Defining Barcodes

If a vaccine's entire 2D barcode data string was embedded in a linear barcode it would be too large to fit on a small vaccine vial or syringe. Notice the difference in character length for each of the below barcode types.


Type	Example	Data Characteristics
Linear Barcode		Maximum—56 a/n characters
Composite Barcode		Max. 56-2361 a/n characters
2D Data Matrix Barcode		Max 2335 a/n characters

Deciphering the Information Contained in a Vaccine's 2D Barcode

The following is an example of a 2D vaccine barcode's raw data string:

01003492815890581714032910U4412AA

The MCIR is designed to parse the continuous "raw" string of data fields, separating the information into separate data fields.

2D Vaccine Barcode Contains	2D Vaccine Barcode Example
 <ul style="list-style-type: none"> ▪ 14-digit GTIN <ul style="list-style-type: none"> - Contains 10-digit NDC - AI is (01) ▪ 6-digit Expiration Date <ul style="list-style-type: none"> - Format is YYMMDD - AI is (17) ▪ Lot Number <ul style="list-style-type: none"> - AI is (10) 	<ul style="list-style-type: none"> ▪ Raw Data on Menactra vial: <ul style="list-style-type: none"> {01003492815890581714032910U4412AA} ▪ GTIN: 0100349281589058 <ul style="list-style-type: none"> - NDC: 4928158905; Check-digit: 8; GS1 US placeholder is 03 ▪ Expiration Date: 17140329 <ul style="list-style-type: none"> - 03/29/2014 ▪ Lot Number: 10U4412AA <ul style="list-style-type: none"> - U4412AA

Benefits of Embedding Vaccine Information into a Barcode

Having the information (e.g., lot number, manufacturer, expiration date) already laid out in the vaccine barcode's raw data string:

- increases the accuracy of the information being captured, minimizing manual data entry errors.
- improve client chart documentation
- decrease inventory reconciliation time
- aids in patient safety initiatives

Using a Barcode Scanner

- Hold your scanner 4-5" away from the barcode.
- Do not block 2D barcode.
- Aim/scan 2D barcode, not the linear barcode.
- Note: It may help to cover the linear barcode with your fingers.
- Do not stand in direct sunlight or scan in a dark room.
- A successful scan will result in a single beep.
- There is no scanner configuration required for MCIR scanning – i.e., use your scanner with the factory setting.
- You must wait for the series of three beeps when you plug the scanner into your computer before you begin scanning vaccines into MCIR.
- Clean the scanner lens with an alcohol swab and allow to air dry. Do not use Kleenex, paper towel or soap & water.
- Do not handle or dangle the scanner by the cord.
- Never touch the scanner lens. The oil from your hands and your fingerprints will impede the scanners ability to read barcodes; and avoid anything that will scratch the scanner lens.

Currently Available 2D Barcoded Vaccines

For a list of currently available 2D barcoded vaccines, please see the [CDC 2D Vaccine Barcode information](#).

Troubleshooting Scanned 2D Vaccine Barcodes

Issue	Resolution
I am trying to scan but do not see the red light.	Check to ensure the scanner cable is firmly connected to the bottom of the device and into the computer's USB port.
	Did you wait for the computer to recognize the hardware when you plugged it in – i.e., Did you hear the series of 3 beeps? Unplug and then reconnect the device to the computer. Listen/wait for 3 beeps.
I am unable to scan the barcode.	Ensure you are holding the barcode 4-5" from the scanner.
	While scanning, slightly rotate the vial along its length to increase scanning consistency.
The barcode data is not populating my computer screen.	Ensure your cursor is placed in the appropriate field of the computer screen.
	If the scanner did not beep, it did not read the barcode. A successful scan should result in 1 beep of the scanner.
I keep scanning the linear barcode instead of the 2D barcode.	Try placing your finger over the top of the linear barcode when scanning.
I am not scanning right now but the scanner's red light keeps turning on	While plugged into your computer, the scanner will sense movement which will cause the red light to activate. Either move the scanner away from your work area or unplug it when not in use.
Will the scanner lose its MCIR configuration if I unplug it?	No, there is no special setting required to scan into MCIR. The scanner should remain set the manufacturer "out of the box" setting.

ADDING 2D VACCINES TO YOUR MCIR INVENTORY

Step 1: Click on the **Add New Lot** link in your VFC/Public or Private inventory.

Manage Inventory - VFC/Public [Print Help](#)
[Home](#) [Exit](#)

Person Rem/Rcl VIM My Site Adm Rpts Oth
 Manage Inv Inv Hist Vacs Admin

Inventory **VFC/Public** [Show inactive lots](#) [Manage Inactive](#) [Balance Inventory](#)

Inventory Details Last Balanced: 09/17/2014

Name VFC/Public Rfg Nbr/VFC Pin* 820113
 Default Active Active Date 04/29/2010

Vaccine	Manufacturer	Lot #	Expires	On Hand	Active	Default
Add New Lot						Lot Detail View
DTaP (Daptacel)	sanofi (DAPTACEL)	C4535AA	07/10/2016	28 doses		✓
DTaP-Hib-IPV (Pentacel)	sanofi (PENTACEL)	C4684AA	11/07/2015	21 doses		✓
Hep A (ped/adol)	Merck (VAQTA)	K001792	10/22/2015	12 doses		✓
Hep A (ped/adol)	Merck (VAQTA)	J014584	01/16/2016	6 doses		✓
Hep B (ped/adol)	Merck (RECOMBIVAX)	J012588	08/29/2015	18 doses		✓
Hep B (ped/adol)	Merck (RECOMBIVAX)	J012567	01/30/2016	1 doses		✓
Hib (ActHib/Hiberix)	sanofi (ACTHIB)	UH871AB	12/06/2014	10 doses		✓
Hib (ActHib/Hiberix)	sanofi (ACTHIB)	UH966AB	02/27/2015	20 doses		✓

Click on the **Use 2D Barcode** link to prepare to scan.

Add Vaccine Lot - VFC/Public [Print Help](#)
[Home](#) [Exit](#)

Person Rem/Rcl VIM My Site Adm Rpts Oth
 Manage Inv Inv Hist Vacs Admin

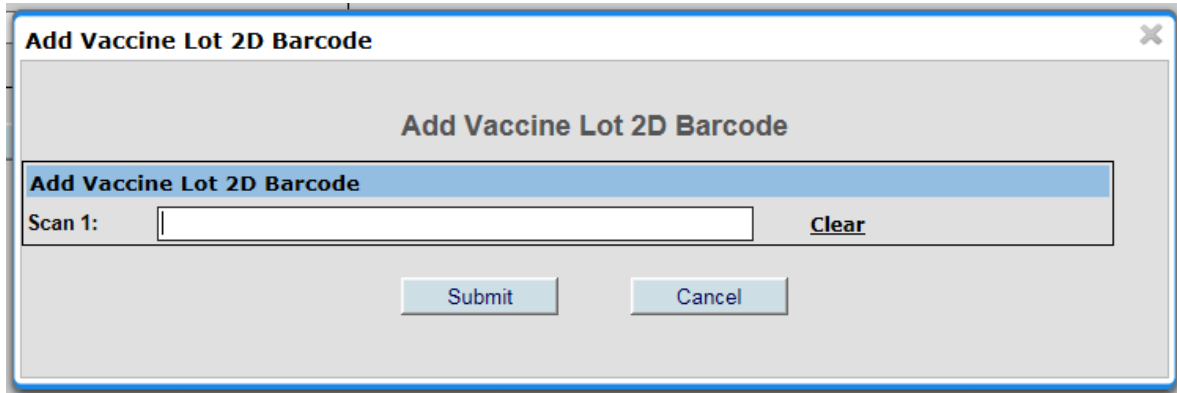
Lot Information

Vaccine* Expires* Volume/Dose:
 Mfr (Product)* Lot #* On Hand: 0
 NDC* Presentation

Transaction Detail

Date* Doses* 0
 Action* Transferred In Reason*
 Inventory Effect: Subtract Add N/A LWB Effect: Subtract Add N/A
 Comment
 Created By: Date: 09/24/2014

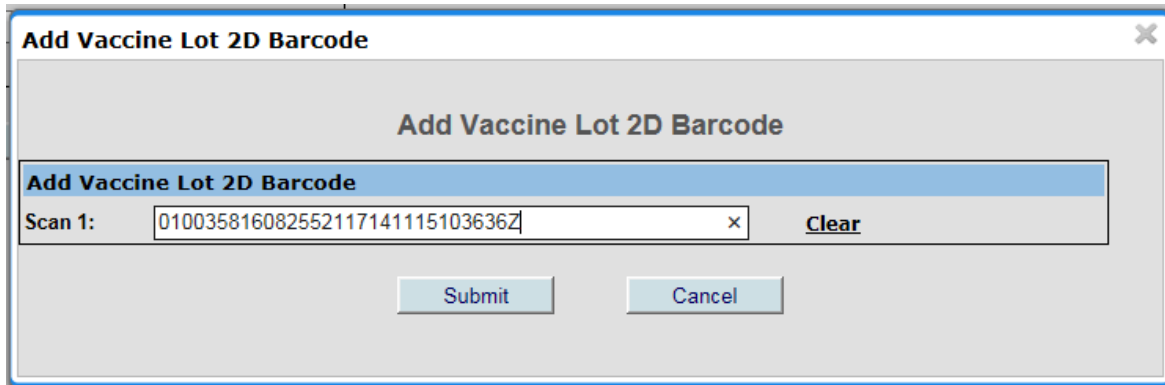
Step 2: The **Add Vaccine Lot 2D Barcode** window should appear. Your cursor will automatically appear in the **Scan1** field.



The screenshot shows a window titled "Add Vaccine Lot 2D Barcode" with a close button (X) in the top right corner. The window has a header area with the title "Add Vaccine Lot 2D Barcode". Below the header is a blue bar with the title "Add Vaccine Lot 2D Barcode". Underneath is a "Scan 1:" label followed by an empty text input field and a "Clear" link. At the bottom of the window are two buttons: "Submit" and "Cancel".



Be sure to scan the 2D barcode on the vaccine box. The raw data string should populate **Scan1** field. Click **Submit** when finished.



The screenshot shows the same "Add Vaccine Lot 2D Barcode" window. The "Scan 1:" text input field is now populated with the raw data string "010035816082552117141115103636Z". A small 'x' icon is visible in the top right corner of the input field. The "Clear" link and "Submit" and "Cancel" buttons are still present.

You will receive the following message if you accidentally scan and submit the linear barcode.



Add Vaccine Lot 2D Barcode

- Scan text is not have sufficient characters, Please check it and scan again

Add Vaccine Lot 2D Barcode

Add Vaccine Lot 2D Barcode

Scan 1: [Clear](#)

Notice the difference in the length of a scanned 2D barcode and a scanned linear barcode:

2D scan:

Add Vaccine Lot 2D Barcode

Scan 1:

Linear scan:

Add Vaccine Lot 2D Barcode

Scan 1:

Step 3: Once you have submitted your scanned vaccine, you will be directed to the **Add Vaccine Lot** screen. Complete the required fields and click **Submit** when finished. You will be returned to the **Manage Inventory** screen.

Add Vaccine Lot - Private [Print Help](#)
[Home](#) [Exit](#)

Person Rem/Rcl VIM My Site Adm Rpts Oth

Manage Inv Inv Hist Vacs Admin

Use 2D Barcode

Lot Information

Vaccine* Expires* Volume/Dose: 0.5

Mfr (Product)* Lot #* On Hand: 0

NDC* Presentation SYR (10)

Transaction Detail

Date* Doses*

Action* Reason*

Inventory Effect: Subtract Add N/A LWB Effect: Subtract Add N/A

Comment

Created By: _____ Date: 09/24/2014

Step 4: The vaccine just scanned should now appear in your inventory.

Lot Transactions - VFC/Public [Print Help](#)
[Home](#) [Exit](#)

Person Rem/Rcl VIM My Site Adm Rpts Oth

Manage Inv Inv Hist Vacs Admin

Manage Inventory

Lot Information

Vaccine	Hep A (ped/adol)	Expires	11/15/2014	Volume/Dose:	0.5
Mfr (Product)	Glaxo (HAVRIX)	Lot #	3636Z	On Hand:	10
NDC (carton)	58160-825-52	Presentation	SYR (10)	Lot Status	Active
NDC (vial)	58160-825-43			Default	No
Date Created	09/24/2014	Created By	clarkj2000		

Note: If you attempt to scan and add a lot to your inventory which already exist in your **Inactive** inventory, scanning the barcode will pull the lot back into your **Active** inventory, provided the vaccine's expiration date is in the future.

REPORTING ADMINISTERED 2D BARCODED VACCINES TO MCIR

Step 1: If you use the Vaccine Inventory Module (VIM), you will need to ensure the vaccine you intend to scan has already been added to your inventory. It is not, however, a requirement to use VIM to scan administered vaccines. The immunization administration **Type** should automatically default to **No Inventory** for Non-VIM sites.

Add Immunizations [Print Help](#)
[Home](#) [Exit](#)

Person	Rem/Rcl	VIM	My Site	Adm	Rpts	Oth
--------	---------	-----	---------	-----	------	-----

[Add/Find](#) [Roster](#) [Add Imm](#) [Information](#) [Status](#) [History](#)

⚠ Scan1 - (01003581608424361714101210N4L77) with expiry date (10/12/2014) is not matching any expiry date with lot number N4L77 in inventory.

Records per page: 9

[Use 2D Barcode](#)

Immunization Information [Clear Event](#)

Type: **No Inventory** Date: 07/24/2014 Vaccine: Tdap (adol/adult) Elig.: Private Pay/Insurance
Mir.: Glaxo (BOOSTRIX) Lot: N4L77 Vol.: 0.5 ml
Site: Route:

Step 2: From the **Add Immunizations** screen. Click on the **Use 2D Barcode** link.

Add Immunizations [Print Help](#)
[Home](#) [Exit](#)

Person: ZZMchigander, Little
Birth Date: 09/15/2008
Provider: **Overdue** [View](#)

Person	Rem/Rcl	Sch/CC	VIM	VFC	My Site	Adm	Rpts	Oth
--------	---------	--------	-----	-----	---------	-----	------	-----

[Add/Find](#) [Roster](#) [Add Imm](#) [Information](#) [Status](#) [History](#)

Records per page: 8

[Use 2D Barcode](#)

Immunization Information - (Lots marked with '*' are from the private inventory) [Clear Event](#)

Type: Admin Date: Vaccine: Elig.:

Step 3: The **Add Immunization 2D Barcode** window should open and your cursor should automatically appear in the **Immunization Information** field box for line **Scan1**.

The screenshot shows a window titled "Add Immunization 2D Barcode" with a sub-header of the same name. Below the header is a table with the following structure:

Immunization Information			
Scan 1:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 2:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 3:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 4:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 5:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 6:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 7:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>
Scan 8:	<input type="text"/>	Eligibility:	<input type="text"/> <input type="button" value="Clear"/>

At the bottom of the window are two buttons: "Submit" and "Cancel".

Step 4: Scan the 2D barcode on the vaccine vial or syringe, then tab over to the **Eligibility** field and select the appropriate vaccine eligibility.

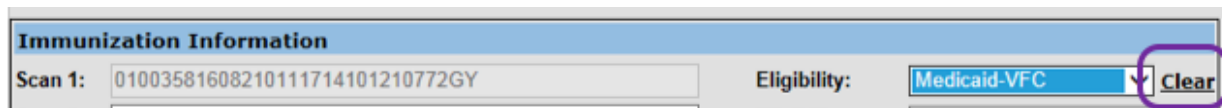
The screenshot shows the same window as above, but with data entered. The "Scan 1" field contains the barcode "01003581608210111714101210772GY". The "Eligibility" dropdown for "Scan 1" is open and shows "Medicaid-VFC" selected. All other "Eligibility" dropdowns also show "Medicaid-VFC".

Scan 1:	01003581608210111714101210772GY	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 2:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 3:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 4:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 5:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 6:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 7:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>
Scan 8:	<input type="text"/>	Eligibility:	Medicaid-VFC <input type="button" value="Clear"/>

At the bottom of the window are two buttons: "Submit" and "Cancel".

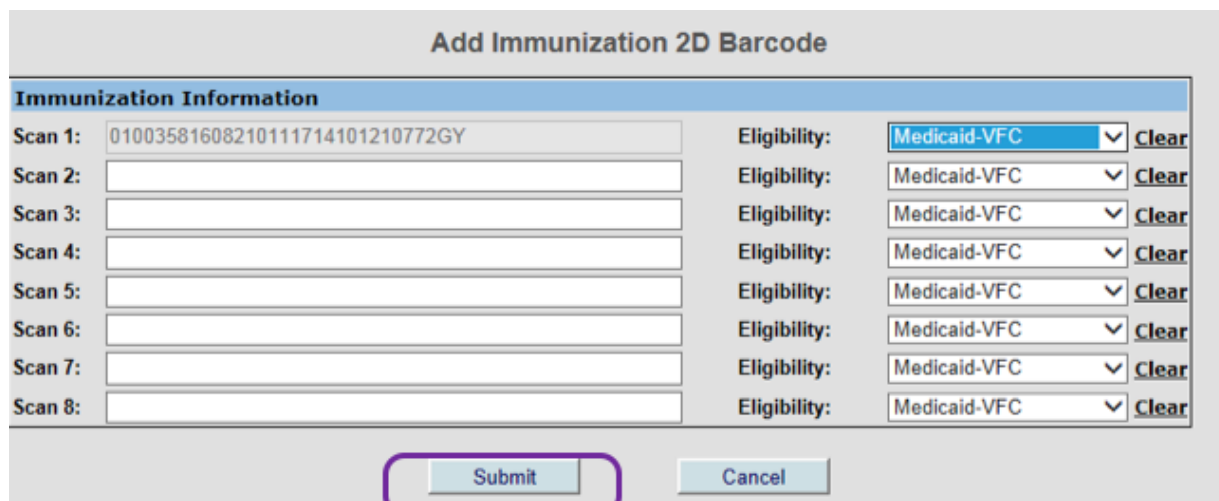
Tab down to the next line, or place your cursor in the **Immunization Information** field box of that line, to scan the next vaccine. Be sure you aim your scanner at the 2D barcode, not the linear barcode.

Step 5: To delete a vaccine scanned in error, click on the **Clear** link, far right end of the scan line.



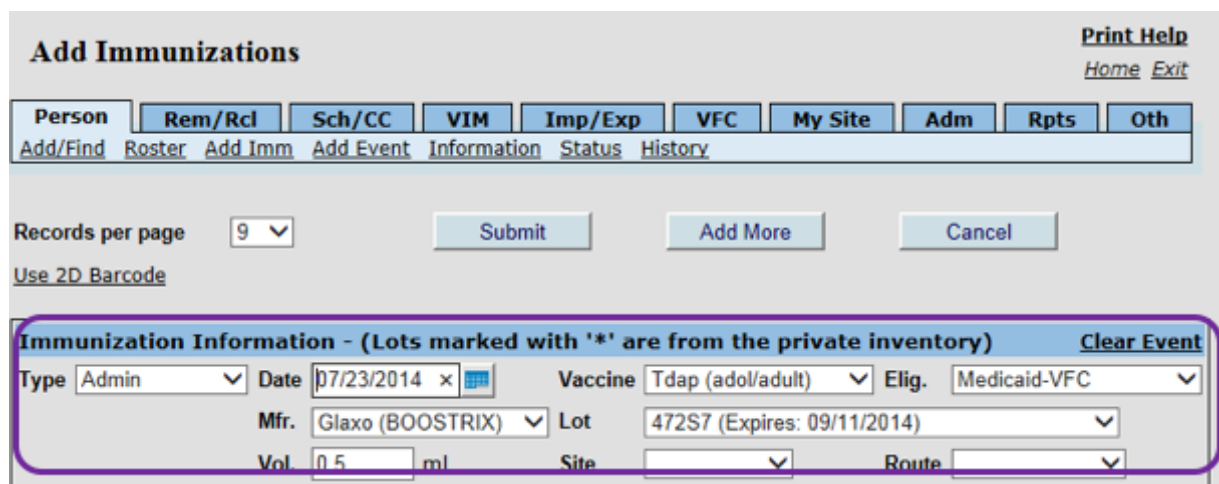
The screenshot shows a form titled "Immunization Information". It has a "Scan 1:" field containing the number "01003581608210111714101210772GY". To the right of this field is an "Eligibility:" dropdown menu set to "Medicaid-VFC". Further to the right is a "Clear" link, which is circled in purple.

Step 6: Once all vaccines have been scanned, click **Submit** from the bottom of the **Add Immunization 2D Barcode** window.



The screenshot shows a window titled "Add Immunization 2D Barcode". It contains a table with 8 rows, each representing a scan. Each row has a "Scan" field and an "Eligibility:" dropdown menu set to "Medicaid-VFC". To the right of each dropdown is a "Clear" link. At the bottom of the window, there are two buttons: "Submit" and "Cancel". The "Submit" button is circled in purple.

Step 7: The vaccine(s) should now display in the **Add Immunizations** screen. All vaccine information should be parsed (separated) and display correctly. Make sure you review the information, adding any additional information, before you click to **Submit**.

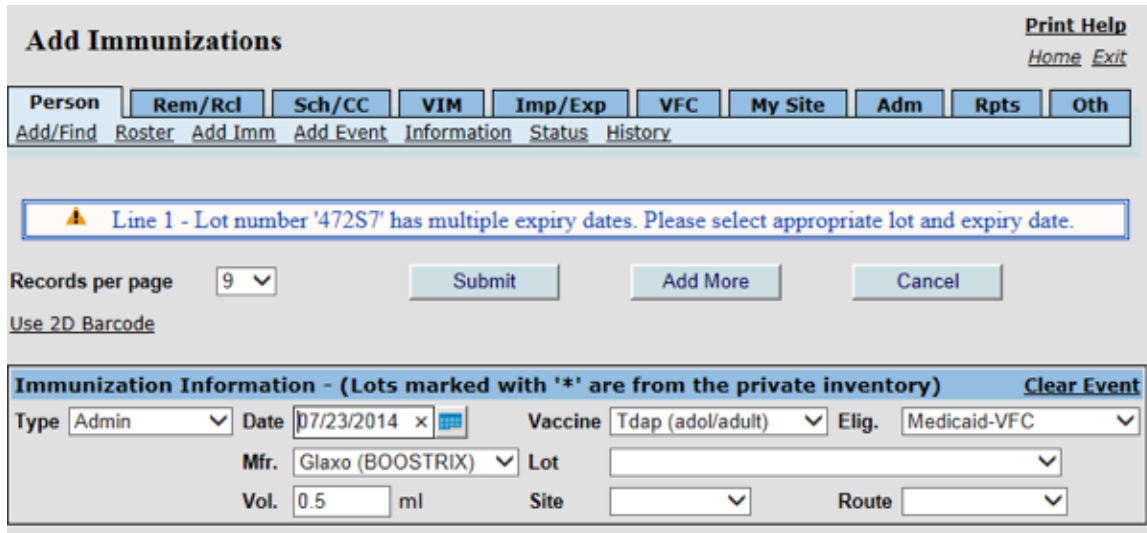


The screenshot shows the "Add Immunizations" screen. At the top right are links for "Print Help", "Home", and "Exit". Below these are several tabs: "Person", "Rem/Rcl", "Sch/CC", "VIM", "Imp/Exp", "VFC", "My Site", "Adm", "Rpts", and "Oth". Under the "Person" tab, there are links for "Add/Find", "Roster", "Add Imm", "Add Event", "Information", "Status", and "History". Below these links is a "Records per page" dropdown set to "9", and three buttons: "Submit", "Add More", and "Cancel". Below the buttons is a "Use 2D Barcode" link. The main area of the screen is titled "Immunization Information - (Lots marked with '*' are from the private inventory)" and has a "Clear Event" link. The form contains several fields: "Type" (Admin), "Date" (07/23/2014), "Vaccine" (Tdap (adol/adult)), "Elig." (Medicaid-VFC), "Mfr." (Glaxo (BOOSTRIX)), "Lot" (472S7 (Expires: 09/11/2014)), "Vol." (0.5 ml), "Site", and "Route". The entire immunization information section is circled in purple.

Submitting an administered immunization will trigger the appropriate transaction (deduction) to occur in inventory, if applicable. For additional information on the Vaccine

Inventory Module (VIM), please refer to the [MCIR User Reference Guide: Vaccine Inventory Module](#).

When you attempt to submit a scanned vaccine already existing in both your Public/VFC and Private inventories, you will receive the following message:



Add Immunizations [Print Help](#)
[Home](#) [Exit](#)

Person **Rem/Rcl** **Sch/CC** **VIM** **Imp/Exp** **VFC** **My Site** **Adm** **Rpts** **Oth**

[Add/Find](#) [Roster](#) [Add Imm](#) [Add Event](#) [Information](#) [Status](#) [History](#)

⚠ Line 1 - Lot number '472S7' has multiple expiry dates. Please select appropriate lot and expiry date.

Records per page: 9

Use 2D Barcode

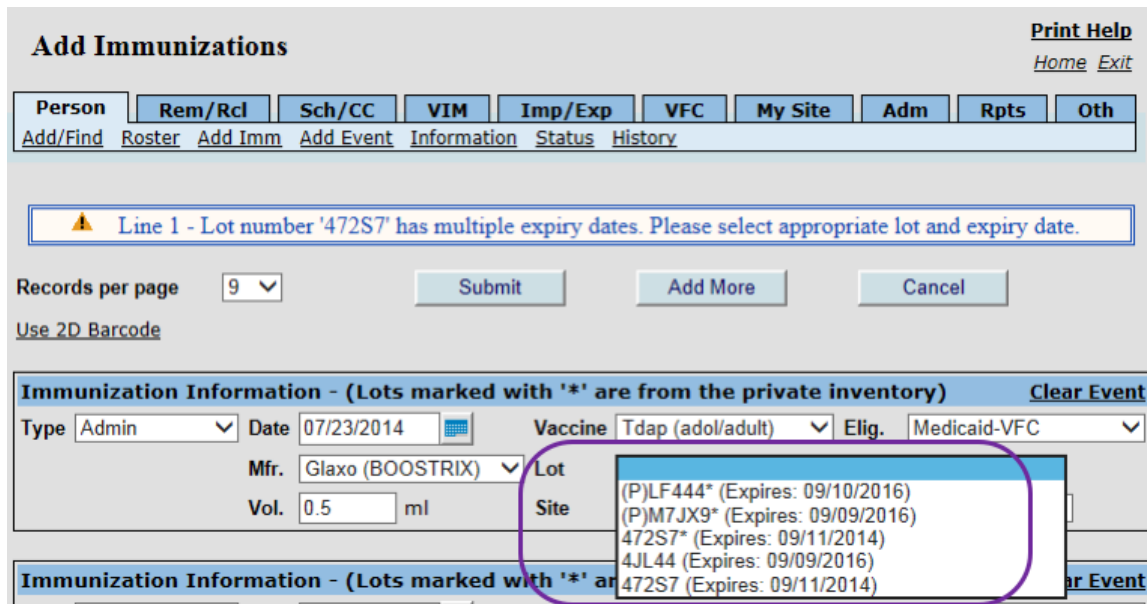
Immunization Information - (Lots marked with '*' are from the private inventory) [Clear Event](#)

Type: Admin Date: 07/23/2014 Vaccine: Tdap (adol/adult) Elig.: Medicaid-VFC

Mfr.: Glaxo (BOOSTRIX) Lot:

Vol.: 0.5 ml Site: Route:

The system will force you to manually choose a lot from the Lot drop-down menu.



Add Immunizations [Print Help](#)
[Home](#) [Exit](#)

Person **Rem/Rcl** **Sch/CC** **VIM** **Imp/Exp** **VFC** **My Site** **Adm** **Rpts** **Oth**

[Add/Find](#) [Roster](#) [Add Imm](#) [Add Event](#) [Information](#) [Status](#) [History](#)

⚠ Line 1 - Lot number '472S7' has multiple expiry dates. Please select appropriate lot and expiry date.

Records per page: 9

Use 2D Barcode

Immunization Information - (Lots marked with '*' are from the private inventory) [Clear Event](#)

Type: Admin Date: 07/23/2014 Vaccine: Tdap (adol/adult) Elig.: Medicaid-VFC

Mfr.: Glaxo (BOOSTRIX) Lot:

Vol.: 0.5 ml Site: Route:

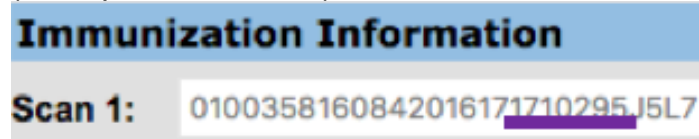
Lot dropdown menu options:

- (P)LF444* (Expires: 09/10/2016)
- (P)M7JX9* (Expires: 09/09/2016)
- 472S7* (Expires: 09/11/2014)
- 4JL44 (Expires: 09/09/2016)
- 472S7 (Expires: 09/11/2014)

Shortened Vaccine Expiration Dates

Although a vaccine's expiration date can be manually altered (shortened) in the MCIR inventory, the embedded information contained within the vaccine's 2D barcode cannot be altered. It is impossible to change the information contained with the barcode.

*Expiration date embedded in the vaccine's 2D barcode
(Example: 10/29/2017)*



*Exact same vaccine lot in inventory with a shortened expiration date
(Example: 01/01/2017)*

Lot Information					
Vaccine	Tdap (adol/adult)	Expires	01/01/2017	Volume/Dose:	0.5
Mfr (Product)	Glaxo (BOOSTRIX)	Lot #	295J5L7	On Hand:	20
NDC (carton)	58160-842-11	Presentation	SDV (10)	Lot Status	Active
NDC (vial)	58160-842-01			Default	No
Date Created	11/10/2016	Created By	clarkj2000		

Scanning a vaccine where the expiration date has been modified (shortened) in inventory will result in an error message, forcing the user to manually select the appropriate lot from the **Lot** drop down menu.

Add Immunizations [Print Help](#)
[Home](#) [Exit](#)

Person

[Add/Find](#) [Roster](#) [Add Imm](#) [Add Event](#) [Information](#) [Status](#) [History](#)

⚠ Scan1 - (010035816090141917151014102EB97) with expiry date (10/14/2015) is not matching any expiry date with lot number 2EB97 in inventory.

Records per page:

Use 2D Barcode

Immunization Information - (Lots marked with '*' are from the private inventory) [Clear Event](#)

Type: Date: Vaccine: Elig.:

Mfr.: Lot: Site:

Vol.: ml

SCANNER EQUIPMENT CONSIDERATIONS CHECKLIST

Purchasing Considerations

- The scanner must read two-dimensional (2D) barcodes, not just linear.
- Scanners range in cost from \$200 and up. Scanner cable cords are at an additional cost. Extended warranties can also be purchased.
- Scanner technology is considered up-to-date for about 2 years, after which the recommendation is to update the hardware, i.e., buy new equipment.
- Scanner stands can be purchased for an additional cost. It is advisable to discuss stand options with the company you are purchasing the scanners from. Each model has a compatible stand(s). Sand-weighted stands are more stable, but cost more.

Scanner Models/Brands

- The Motorola DS4208 and the Gryphon I GD4430 were both verified as MCIR compatible during Michigan Dept. of Health and Human Services' (MDHHS) 2014 2D Barcode Project.
- Other brands have not been by the MDHHS for compatibility with MCIR.

Scanner Settings and MCIR Compatibility

- For the scanner to properly function with MCIR, it must remain set to the factory settings, i.e., used straight out of the box.
- Scanners currently utilized with electronic health record (EHR) systems will not work with MCIR because they have been configured (i.e., altered) to work within the EHR application.
- For information on EHR 2D barcode scanning, please contact your vendor

MCIR 2D VACCINE BARCODE ERROR MESSAGES

Questions regarding error messages received while scanning into your electronic health record (EHR) should be directed to your office's technical staff or your EHR vendor.

Error Message	Description	How to Fix
Lot number 'lot Number' with expiry date 'Expiry Date' does not match on expiry date. Please select appropriate lot and expiry date.	The Lot Number and expiry date does not match the lot# and expiry date in inventory. This could be the result of: either a lot #'s expiry date being shortened or because the lot has not been added to an active VFC (Public) or Private inventory.	Manually select Lot# and expiry date from persons Add Immunization screen's lot dropdown menu
Lot number 'lot Number' has multiple expiry dates. Please select appropriate lot and expiry date.	The Lot Number has multiple expiry dates in inventory. This could be the result of having the same lot# in Private and VFC (Public) inventories.	Manually select Lot# and expiry date from persons Add Immunization screen's lot dropdown menu
Duplicates found for scan 'Scan Text' Please correct before proceeding.	Scanned code is a duplicate of another scanned code.	Clear one of the duplicate entries. Be sure to verify the line you keep correctly reflects the Vaccine Eligibility and inventory.
Scan (lines 1 to 8): Lot Number: 'Lot Number' does not exist in inventory	Site has an active inventory, but the scanned lot# does not exist in the inventory.	Add lot to inventory and then attempt the administration scan again to create an inventory transaction.
Scan (lines 1 to 8) NDC 'ndc' does not exist in the system (For Scan Line 1 to 8 if NDC does not found in inventory system).	The vaccine includes a 2D barcode which has not been added to MCIR.	Contact your regional MCIR office.
Please select the eligibility for scan (lines 1 to 8).	Eligibility was not selected prior to submitting scanned data.	Select eligibility and click Submit.
Scan (lines 1 to 8) text does not have sufficient characters. Please check it and scan again.	The Linear barcode was scanned instead of 2D barcode.	Delete the line and re-scan, using the 2D barcode.