EPIC TRAINING

ED Infusion Pump Integration

Quick Start Guide

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HOUSTON Methodist
LEADING MEDICINE

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Alaris Pump Integration

You already know the process of documenting your medications in Epic. In this class we'll connect it to using the IV pumps with Epic. Key topics we'll review:

Definitions

Do's and Don'ts

Before You Start (pumps on, wireless connection)

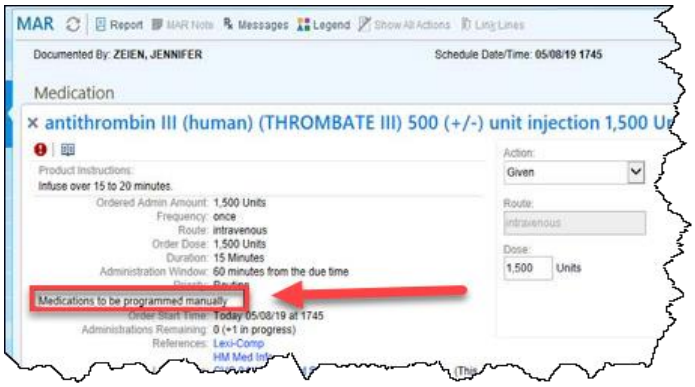
Definitions:

a. **Programmable State on the pump**
   i. The "**programmable state**" on the pump is just when you see that the pump is on, and there is a green light on at the Wifi/Internet icon, and the screen of the pump brain shows the most current HM Library Date (the date is shown on the top line of the screen)
   ii. When you are getting ready to use the IV Pump, you will need to make sure the pump is in a "ready state" to be associated/linked to a medication order and patient.

b. **Associating pump channels**
   i. The term "**associating the pump**" is you linking that pump channel as running a particular medication order with one specific patient.
   ii. Each channel can only be linked with one patient at a time, with one medication order running at a time (even with an IV piggyback/secondary link, the main line stops while the secondary bag is running).
   iii. A correctly associated pump channel will display the patient's MRN on the screen of the pump brain next to ID#

c. **Disassociating pump channels**
   i. The term "**disassociating the pump**" is you removing the link between that pump channel and that one particular order.
   ii. Once that channel has been disassociated with a medication order, you can use it to run a different medication order with that same patient.

d. **Blacklisted medications**
   i. A "**blacklisted**" medication is one that cannot be used with IV Pump Integration into Epic.
   ii. These are "**out of scope**" medications that will need to be programmed manually using guardrails, the same process you used prior to the integration of the pump with Epic.
   iii. If you are administering a "blacklisted" medication, in the MAR you will see the verbiage stating "**Medication to be programmed manually**" in the Medication Administration Window



e. **Pump Rate Verify button**
   i. This is the button in the MAR toolbox that will document the information from the IV Pump.
   ii. You will use this button to verify your IV Meds that have been running AND to document your fluid volumes, rate changes, titrations, etc. into Epic.

Do's and Don'ts

a. DO Use Guardrails when programming manually/not using pump integration → You will need to manually program/use guardrails on the IV Pump when you are using a medication that is "blacklisted"

b. DO Keep track of your I/O's for medications that are manually programmed, as you will not see these in the Pump Rate Verify window

c. DO Turn the pump completely off and then back on and "power cycle" the pump when using the pump for a new patient.

d. DON'T Use any "Delay" features on the pump. You should be documenting and hanging IV meds in Real-Time, not "delaying" any start times.

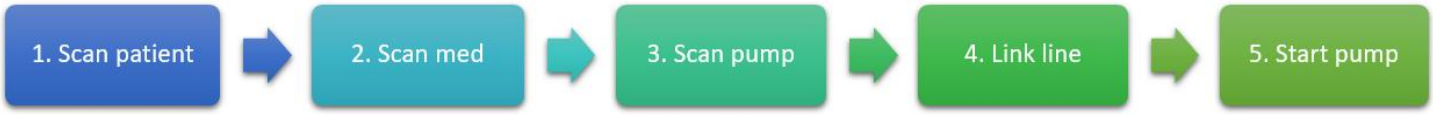
e. DON'T Adjust times on the pump. The pump is wirelessly connected to servers to sync the time to be in line with Epic (the EMR).

Before You Start (pumps on, wireless connection)

a. Before you start trying to get your IV Pump information from the pump into Epic, you'll need to make sure you do the following things:
   i. **Turn on your pumps** (let's do this now)
      1. If you've previously turned off an associated pump due to it not currently needing to run, you will need to turn it back on in order to get information stored from it, to pull into Epic
      2. All your associated data is stored on the pump, so it needs to be on before you try to use **Pump Rate Verify**
   ii. Make sure the **Wireless icon is On and Green** 
b. Once you've seen that the Wireless icon is Green, we're ready to start

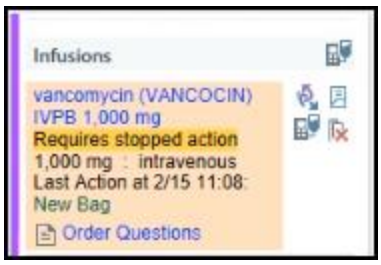
Associate infusion pumps with medications (Dextrose)

Associate the infusion pump with a medication so that you can program the pump and validate the infusion details in Epic. At a high level, the steps are:



Detailed steps:

1. From the ED Track Board
2. Scan the patient's wristband to open the Patient's chart to the **ED Narrator** activity.
3. Locate **Order** and **Scan** the medication from the **MAR Toolbox** section.
4. **Turn on Pump**.
5. Scan the **Infusion Pump.** Window opens
6. Scan the pump **channel's barcode**.
   a. If your pump has multiple channels, choose the channel you're infusing the medication through.
7. Select and **link the line** you're infusing the medication through.
8. **Associate** order to pump by selecting **Primary** or **Secondary**.
9. Verify that the pump association time is correct and click **Accept**.
10. In the **Medication Administration window**, review the administration details. If there's a ranged dose or rate, enter the starting dose or rate. Click **Send Order Details to Pump**.
11. Verify that the medication details that appear on the pump screen match the intended medication values of the infusion, and then start the pump by pushing Start button .
12. When the pump has started successfully, the window disappears, the pump is associated, and the administration appears in the **MAR toolbox** as an **Infusion**.



Associate infusion pumps after the fact

When your patient needs a medication STAT or when a patient is transferred, you can start the pump before you associate it in Epic. Later, you need to back-associate the pump so the data from the pump appears in Epic.

1. Scan the patient's wristband and then scan the medication.
2. Select the correct MAR action:
   - Use **New Bag** if the infusion hasn't been documented in Epic yet.
   - Use **Associate Pump** if you have already documented the new bag and want to start receiving infusion data in Epic.
3. Document times:
   - If you selected **New Bag**, document the correct administration time and details.
   - If you selected **Associate Pump**, scan the pump, select the channel, and select or enter the time at which you started the pump.
4. Click **Accept**.
5. In the Medication Administration window, review the administration details and click **Accept**.

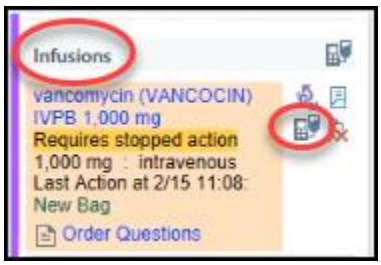
Then follow the steps to validate the data.

Validate pump data

After you associate a pump, it sends data to Epic in intervals. Follow your unit's policies for how often you need to validate rates and volumes.

To review and validate pump infusions, use the **Pump Rate Verify** icon. Using this icon, you can verify rates for a single infusion or all of a patient's pump infusions at the same time.

1. Open the **ED Narrator** and navigate to the MAR toolbox section.
    - Navigate to the **Infusions** header in MAR toolbox and locate the medication. To the right of the med is the **Pump Rate Verify** icon . The **Pump Rate Verify** icon pulls in data from the pump and adds the information to your documentation.



2. Click icon. **(Pump Rate Verify)**.
    - Each medication appears in its own section.
    - The **Source** column shows additional information, such as whether the pump went offline during an administration.

NOTE: If you select icon to right of the word Infusions, all infusions will appear.

3. Verify that the rate, dose and volume data is accurate for each medication.
    - Select **Edit End Time**, Select **Now**, and select **Confirm End Time** from top right corner of Pump Rate Verify window to get the most recent information
    - You don't need to verify rates that match the last known rate from the pump, so check boxes don't appear next to those rates.
4. Clear check boxes for administrations you don't want to file, such as clinically insignificant pauses.
5. Confirm that the correct action (**Stopped** or **Paused**) is selected for infusion rates of 0 mL/hr.
6. If a **Show MAR Warnings** link appears, click the link to reconcile those warnings. ***You must reconcile any warnings to complete process.***
7. Click ✔ **Accept** when you've reviewed all the infusions.

Change the rate of an infusion from a pump

1. Change the rate on the pump.
2. Open the **ED Narrator** and navigate to the MAR toolbox section.
3. Click **(Pump Rate Verify)**.
4. Verify that the rate, dose and volume data is accurate for each medication.
5. The check box next to the rate change appears. Click ✔ **Accept**.
6. The new rate appears in the **MAR Tool box**.

Document giving a piggyback from a pump

When you give a secondary IV (IVPB), the pump will automatically restart the primary infusion when the IVPB is finished.

Start a piggyback

1. Scan the patient's wristband to open the **Med Administration box**.
2. Scan the IVPB and the pump, then choose the secondary channel.
3. Review the medication information and click **Send Order Details to Pump**.

At this point, you can use **Pump Rate Verify** to validate the rates and the stopped action for the primary infusion.

Stop a piggyback with automatic primary restart

> It's important to validate the volume for the IVPB before you disassociate the pump so that you can see the volumes coming directly from the pump.

1. Click **(Pump Rate Verify tool)** on the toolbar.
2. Verify that the rate for the piggyback is **0**. Choose the **Stopped** action.
3. Verify that the volume for the piggyback is correct. Adjust it if necessary.
4. Verify that the primary infusion rate is correct, and the action is **Restarted**.
5. Click **Accept**.

Document giving a bolus from a pump

IVF Boluses are different from hanging a normal new bag. The difference between a normal new bag and a bolus new bag is the rate, volume, or duration at which it's ordered. Rate setting is typically 999 mL/hr. with volume and duration, such as 250 mL over 15 min

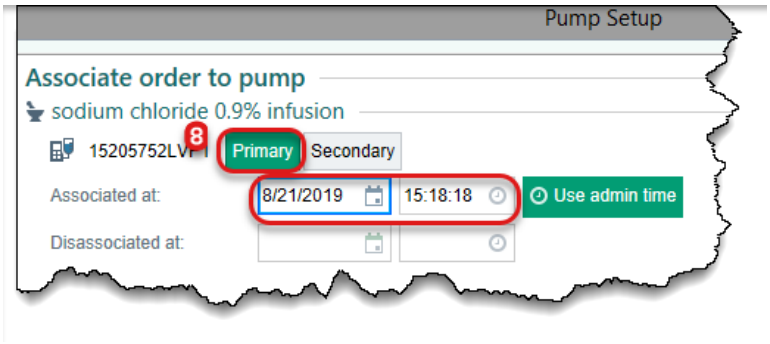
Bolusing a maintenance fluid from a new bag

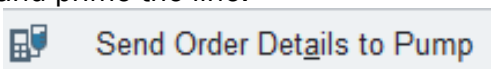
1. Verify that Pump is on, profile is chosen, and module is in a programmable state.
2. Start a new bag as you normally would, by scanning the patient's armband.

3. The **chart** for that patient opens automatically and go to ED Narrator to locate Infusion order in MAR Tool Box.
4. Locate and scan your **new bag of fluid**.

5. Scan the **Pump** channel by scanning the **barcode** on appropriate channel

6. Select the line in which the medication will infuse.

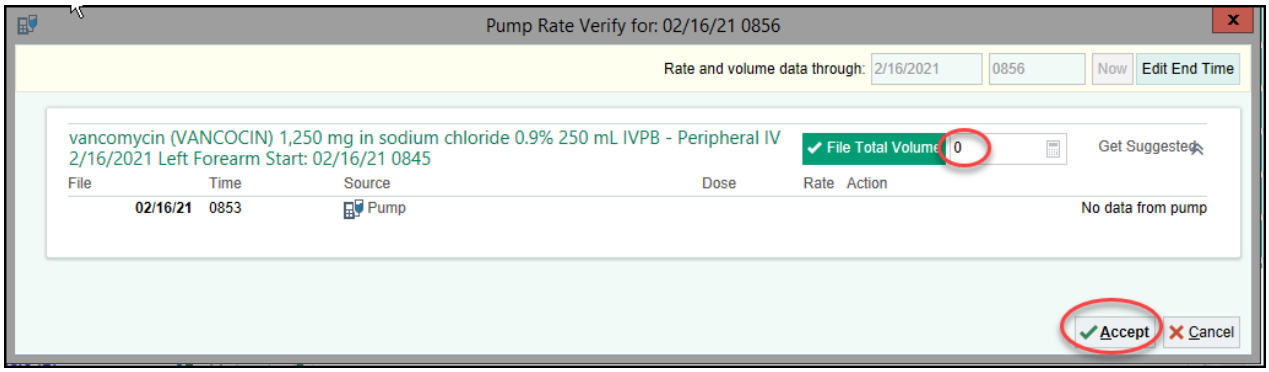


7. Select **Accept**.
8. Pump Setup window will appear, select **Primary**, and verify date and time.
9. Select **Accept**.
10. Review administration details and document action of **New Bag**.
11. Spike and prime the line.
12. Select  button.

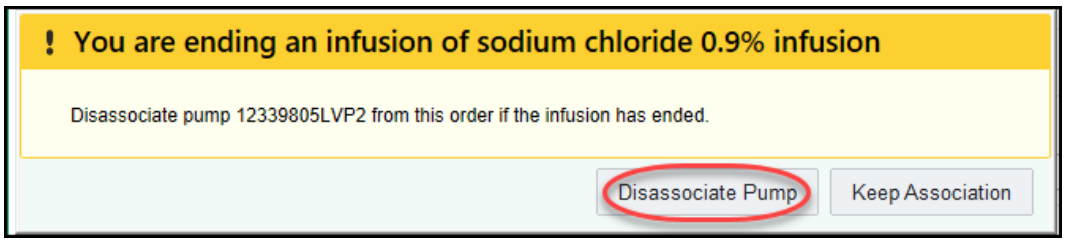
13. Verify the infusion information and select **Start** on the pump.

14. Verify that the bolus appears in the **MAR Toolbox** and is documented on the Event Log.

15. When the bolus stops infusing, validate the zero rate in **Pump Rate Verify**. Click **Accept**.

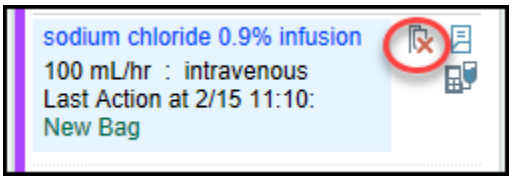


16. Click **Red X** to document action of **Stopped** in **MAR Toolbox,** and disassociate the pump when prompted.

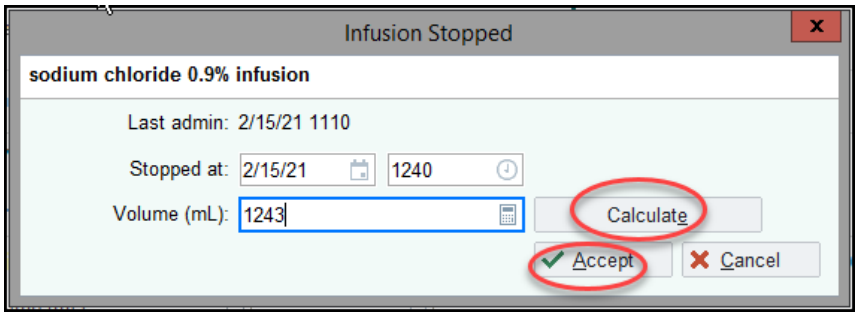


Bolusing a maintenance fluid from an existing bag

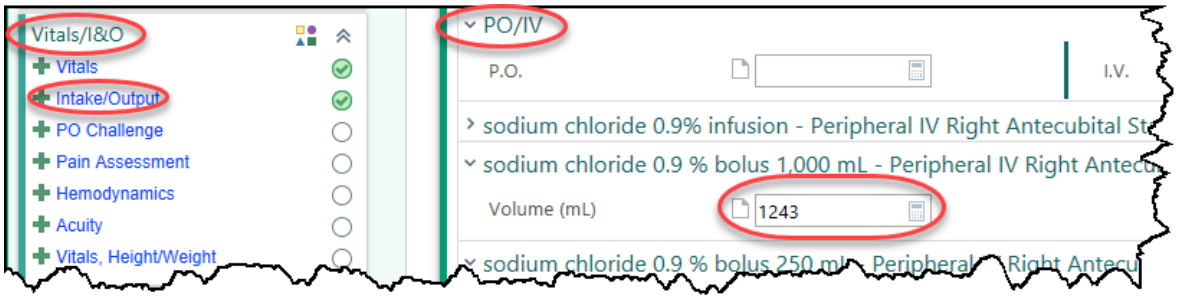
1. When the bolus stops infusing, document stop time as per normal workflow. Click **Red X**.



2. Click **Calculate** to calculate volume. Click **Accept.**



3. Open the **Intake/Output area in ED Narrator.**
4. Locate the Bolus, and volume should be auto populated from your calculation.



5. Documentation is now recorded in the **Event Log**.

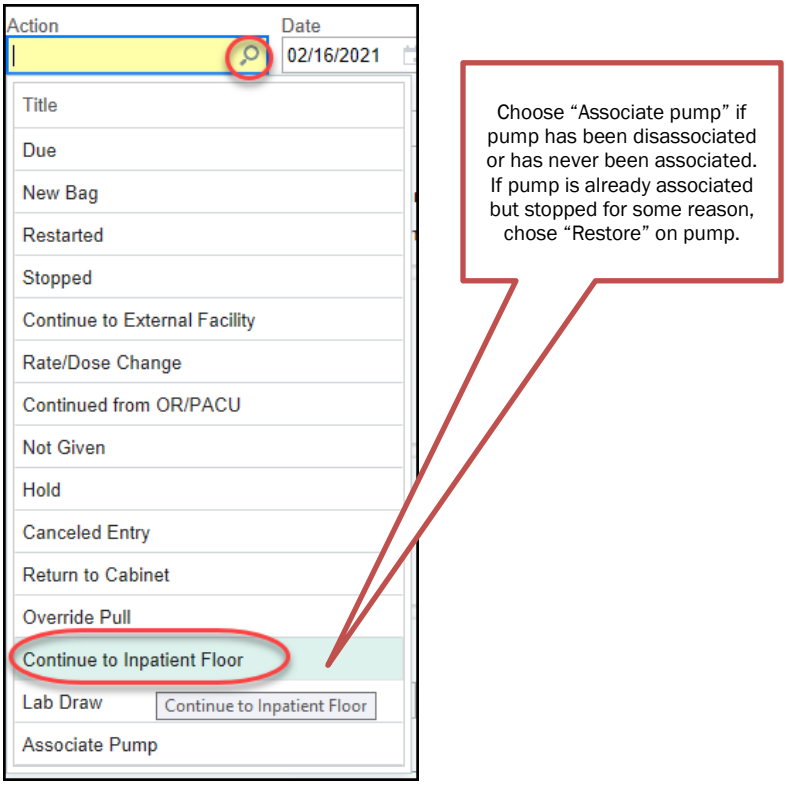
Bolusing a medication from an existing bag

1. Scan the patient's armband from the **Patient Lists** page.
2. In the **MAR toolbox**, click the **Due Time** to open documentation box for the bolus order
3. Choose the Medication Administration window action of **Bolus**
   a. This action populates a dose in the bolus row that was added to the same infusion.
   b. The bolus order is not associated to a pump.

4. Press **Channel Select** key on the correct module.
5. Select the **Bolus** soft Key on Pump.
6. Program the bolus dose and duration into the correct channel.
7. Press the Start soft key on pump to initiate the bolus dose.
8. Simultaneously validate the order on the Pump and on the **Medication Administration** and click **Accept**.
9. Validate the total volume, the initial and final infusion rates from the **Pump Rate Verify** in **MAR toolbox**

IV Pump MAR Actions

1. Circled below shows Medication Administration actions you would choose when admitting a patient with an infusion. Click magnifying glass in Medication Administration box for list. You will take existing pump with patient and bring another pump back to the ED.



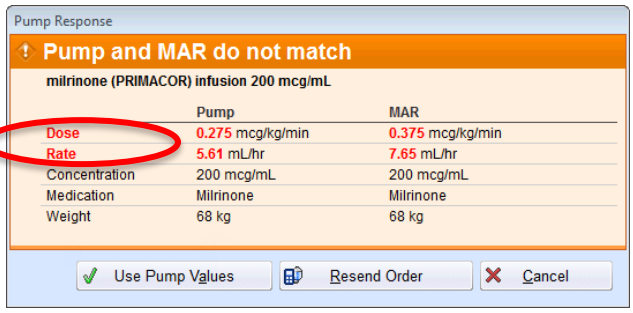
2. To verify if pump is associated, look for icon in MAR Toolbox and check Event Log for documentation time when medication was started.

Error Titles

Error codes will show up with in two different types. **Pump Response** and **Administration Warnings**.

Pump Response error codes and Administration warnings.

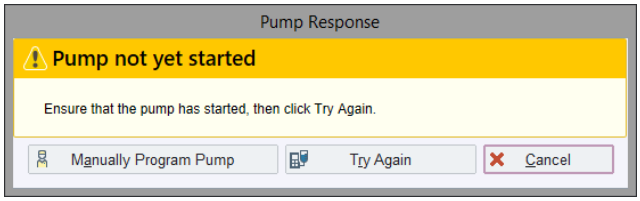
1. **Pump and MAR do not match**: If you start an infusion pump with medication details that don't match the medication values in the Medication Administration window, the Pump Response window appears. For example, if you change the dose or rate information on the pump after you click **Send Order Details to Pump**, the warning message appears. In the **Pump Response** window, conflicting values appear in red.



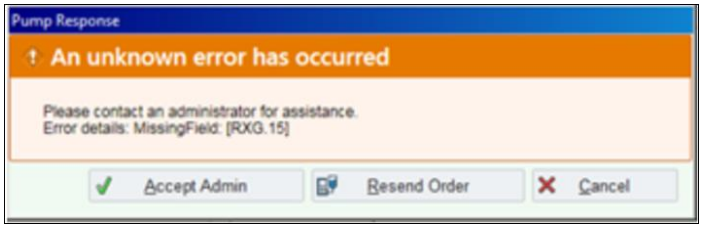
After you determine which values are correct, follow the steps below to continue administering the medication. **If the values on the Pump column in Pump Response window are correct:**

a. Click **Use Pump Values**. This option is available only for conflicting dose and rate values. The administration appears on the MAR with the pump values, and the pump is associated.
b. **If the values in the MAR column on the Pump Response window are correct:**
    i. Stop the pump,
    ii. Clear the pump program,
    iii. And click **Resend Order**.
c. Verify that the medication details listed on the pump screen match the intended medication values of the infusion that are listed in the Medication Administration window and start the pump.
d. When the **Infusion Administration** window indicates that the pump started successfully, click **Accept**. The administration appears in the MAR toolbox and the pump is associated.

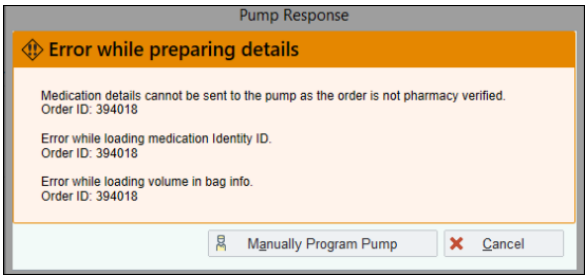
2. **Pump not yet started warning**: If the pump has started but the data isn't coming through.
    a. Click **Try Again**.
    b. If the warning appears again, wait approximately 15-20 seconds and click **Try Again** a second time.
    c. If the warning appears a third time, click **Manually Program Pump** to save the administration and continue with your documentation.



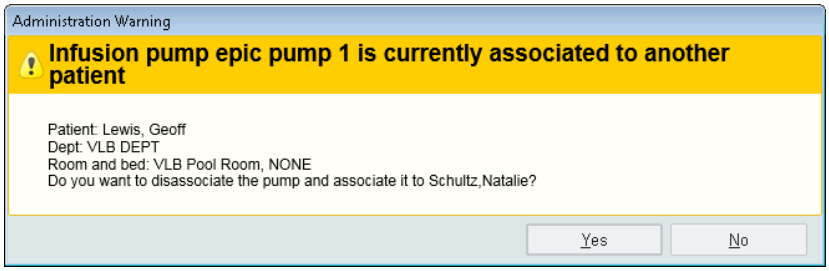
3. **An unknown error has occurred**: if a missing field in Epic order is detected, verify with the Error details field.
    a. Fill out missing field and
    b. **Click** Resend Order .button.
    c. If error message is still ongoing, please contact an administrator or the Help Desk for assistance.



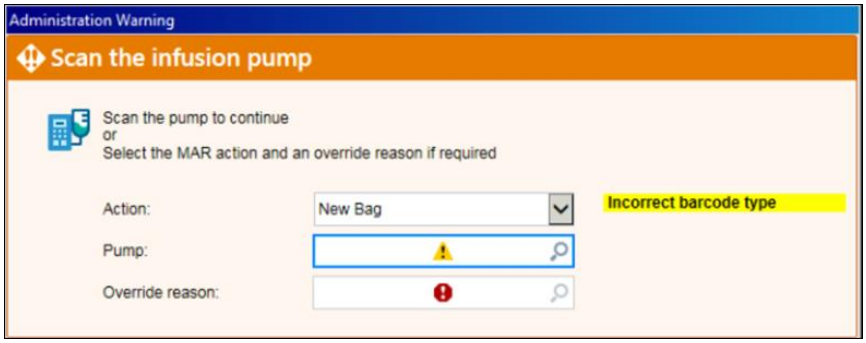
4. **Error while preparing details**: When there are configuration errors encountered while preparing order details for medication.
    a. Please contact an administrator or the Help Desk for assistance.



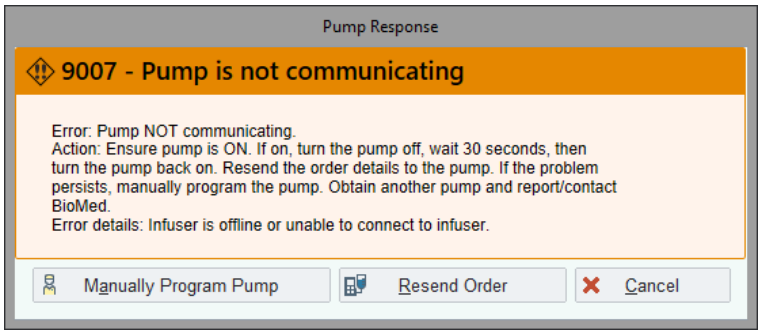
5. **Infusion Pump is currently associated to another patient:** When attempting to use a pump channel currently associated to another patient.
    a. Select Yes to associate the pump with your patient. This disassociates the pump from the previous patient 1 second before the new association time with your patient.
    b. Select No to keep association to linked patient and use another pump.



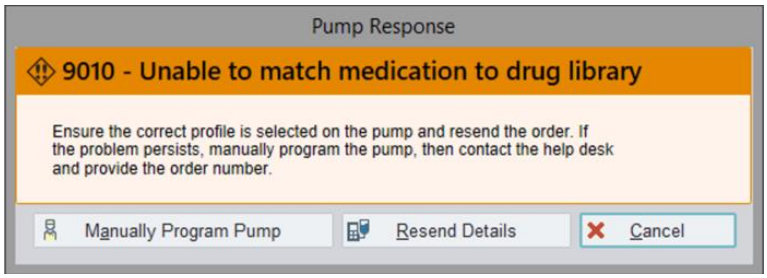
6. **Scan the Infusion Pump: Incorrect barcode type.** The pump's barcode/serial number is not entered correctly or is missing in Epic.
    a. Check to make sure barcode label matches options on Epic.
    b. Contact the Help Desk if unable to correct.



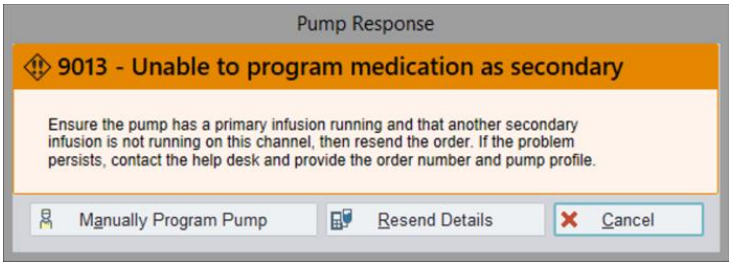
7. **Pump is not communicating:** The pump is not connected to a Wi-Fi network.
    a. Restart Pump and Resend Order.
    b. If still showing up, contact Biomed.



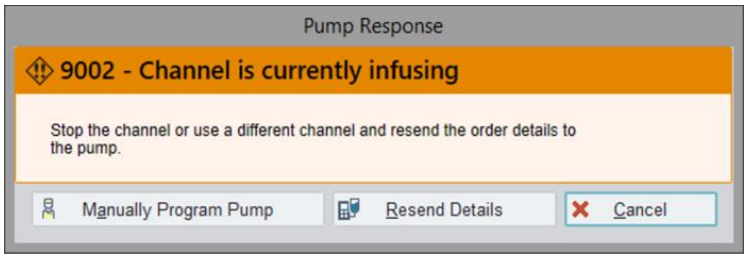
8. **Unable to match medication to drug library:** Either the drug in Epic is not built in the pump's drug library, or the pump is currently in the wrong profile.
    a. Ensure the correct profile is selected on the pump and resend details.
    b. If problem persists, manually program the pump, then contact the Help Desk.



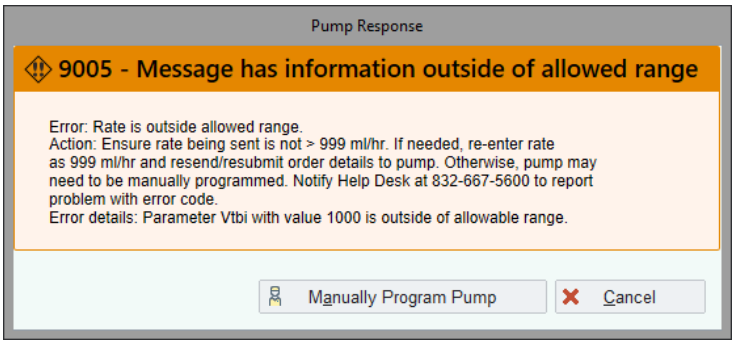
9. **Unable to program medication as secondary**: when cannot program a secondary when a primary is running.
    a. Ensure the pump has a primary infusion running and that another secondary infusion is not running on this channel.
    b. If problem persists, then contact the Help Desk.



10. **Channel is currently Infusing**: When another infusion is currently running on the same channel or pump.
    a. Stop the Channel, or use a different channel
    b. Resend Order details to pump.



11. Message has information outside of allowed range: A parameter has exceeded the physical infusion limits of the pump. Most commonly due to a rate over 999 mL/hr, or excessively large VTBI sent over the pump.
    a. Click Cancel and ensure the values entered are within the pump's allowable range.



12. Other 9000 code warnings: will have the header display cause of error, and details to fix issue.
    a. If problem persists, manually program the pump, then contact The Help Desk

Document Primary Infusion

- PATIENT: Norman
- MEDICATION: Dextrose 5 % IVF

SCENARIO:

Norman is present at the ED for suspected infection and is experiencing elevated temperature and inability to void. Orders exist for Dextrose 5 % Infusion to run at 100 ml/hr. You are ready to hang this as your primary bag.

D5W IVF

Try it out:

1. Verify Pump is on, and module in idle state.

2. Scan the patient's wristband.
    b. **Note**: Patient meds in MAR toolbox
    c. Acknowledge orders.
3. Scan the medication
4. Scan the pump.
5. Link the Line and Accept
6. Associate infusion to pump by choosing **Primary**.
7. Verify that the pump association time is correct and click **Send Details**.
8. After Successful receipt by pump Click Accept
9. Verify that the medication details that appear on the pump screen match the intended medication values of the infusion, and then start the pump.
10. When the pump has started successfully, the window disappears, the pump is associated, and the administration appears in the MAR toolbox and the icon appears. 

Document secondary Infusion

- PATIENT**:** Norman
- MEDICATION: Vancomycin IVPB

SCENARIO: Now that you have your primary bag running, you want to administer the ordered Vancomycin IVPB.

Vancomycin IVPB

Try it out:

1. Scan the patient's wristband.
2. Scan the IVPB
3. Scan the pump, link the line, Click Accept.
4. Choose **Secondary association**.
5. Review the medication information and click **Accept**
6. Click the secondary button on the pump and verify the details and then start the pump

At this point, you can use Pump Rate Verify to validate the rates and the stopped action for the primary infusion.

Validating Infusion/Pump Rate Verify

- PATIENT: Norman

After you associate a pump, it sends data to Epic in intervals. To review and validate pump infusions, use the **Pump Rate Verify** tool. In this tool, you can verify rates and volumes for **ALL** a patient's pump infusions at the same time.

SCENARIO:

Now that you have hung the maintenance fluid and IVPB infusions, you will need to validate rates and volumes.

Try it out:

1. Open the **ED Narrator** and navigate to the MAR toolbox section.
2. Navigate to the **Infusions** header in MAR toolbox and locate  .
3. Click  **(Pump Rate Verify)**.
4. Verify that the rate, dose and volume data is accurate for medication.
5. Confirm that the correct action (**Stopped** or **Paused**) is selected for infusion rates of 0 mL/hr.
6. Click ✔ **Accept** when you've reviewed all the infusions.

Stopping an infusion/ Pump disassociation

Validate that a pump is **paused** when you're using the pump for another infusion, such as a piggyback. Validate that a pump is **stopped** when that infusion is finished. Whether you stop the pump manually or it stops automatically, you need to validate that action using **Pump Rate Verify**.

SCENARIO: Your maintenance fluid and IVPB that you hung earlier are now completed and you now want to validate and stop it.

Try it now:

1. When the bolus stops infusing, document stop time as per normal workflow. Click **Red X**.
2. Click **Calculate** to calculate volume. Click **Accept.**
3. Open the **Intake/Output area in ED Narrator.**
4. Locate the Bolus, and volume should be auto populated from your calculation.
5. Documentation is now recorded in the **Event Log**.
6. If the patient no longer needs the pump or if you plan to infuse a different medication through this pump, disassociate the pump.
   a. Confirm that the correct action (**Stopped** or **Paused**) is selected for infusion rates of 0 mL/hr.
   b. Select the disassociate button to remove pump from patient, and then click ✔ **Accept**.
7. If a Show MAR Warnings link appears, click the link to reconcile those warnings. If you don't click the link, the warnings will appear when you click ✔ **Accept**.

!	It's important to validate the volume for the IVPB before you disassociate the pump so that you can see the volumes coming directly from the pump.

Back associating on Pumps

Infusion: Dextrose 5% and lactated ringers.

Scenario:
We administered D5 LR over an hour ago, but due to an emergent situation, RN was not able to document on Epic. Document administration of the fluid now after things have calmed down.

1. Scan the patient's wristband to open the MAR.
5. Scan the medication.
6. Scan the pump.
7. Select the line you're infusing the medication through.
8. Associate infusion to pump by choosing **Primary**.
9. Document the Relevant time (h-1)
10. Click Accept
11. Validate data

Documenting a Bolus from an Existing Bag.

Try it out: You will now Bolus the Dextrose you just associated.

Bolusing a medication from an existing bag

1. Scan the patient's armband from the **Patient Lists** page.
2. In the **MAR toolbox**, click the **Due Time** to open documentation box for the bolus order
3. Choose the Medication Administration window action of **Bolus**
4. This action populates a dose in the bolus row that was added to the same infusion.
5. The bolus order is not associated to a pump.
6. Press **Channel Select** key on the correct module.
7. Select the **Bolus** soft Key on Pump.
8. Program the bolus dose and duration into the correct channel.
9. Press the Start soft key on pump to initiate the bolus dose.
10. Simultaneously validate the order on the Pump and in the **MAR** toolbox and click **Accept**.
11. Validate the total volume, the initial and final infusion rates from the **Pump Rate Verify** in **MAR toolbox**

Document a Titration

SCENARIO: Norman starts to have a decrease in blood pressure and urine output. Her B/P is 88/40 and her urine output is less than 30 mL/hr. She has received 2 liters of NS and remains hypotensive. So, the physician ordered Dopamine Infusion 400mg/250 mL (D5W) for her starting at 2 mcg/kg/min.

Try it out:

Scan Patient Barcode.

1. Scan the medication
2. **Scan the pump** channel and associate the Order to Pump.
3. Select Primary and Accept.
4. Enter starting dose at **2 mcg/kg/min**
5. Click Send Order Details to Pump button
6. **Press "Confirm"** Soft Key on Pump**:** To confirm its Dopamine
7. Select "Next" Soft key > Select "Start"

Scenario: 5 mins has passed, and we titrate on the pump to increase the dose.

8. Titrate on the pump to 4 mcg/kg/min

Scenario: 5 mins has passed, and we titrate on the pump to increase the dose again.

9. Titrate on the pump to 6 mcg/kg/min.

Scenario: After 2 mins, Norman must go to the restroom.

10. **Pause** the infusion on the **pump**.

Scenario: He has returned after 2 mins, and we need to restart the infusion

11. **Select Restart soft key** the infusion on the pump.
12. Open the **I/O** in **ED Narrator** to verify all the changes made.
    a. **Click the Dopamine** blue link. This will open an Infusion Data Validate window that shows the data coming from the pump.
13. **Click Accept.**

Dual Sign-Off Workflow

Scenario: Norman has an order of Heparin that we need to administer. We note the order requires a dual signoff from a second nurse. Follow steps like you would when documenting a primary infusion.

Try it out:

1. Scan Patient Barcode.
2. Scan the medication (Heparin)

3. Scan the pump channel and associate the Order to Pump.
4. Select **Primary** and **Accept**.
5. **Verifying RN** will verify details, and select Send Order Details to Pump button
6. Verifying RN will sign. (TRN025/train)
7. Select “Start” on Pump

For More Information

Epic Learning Home

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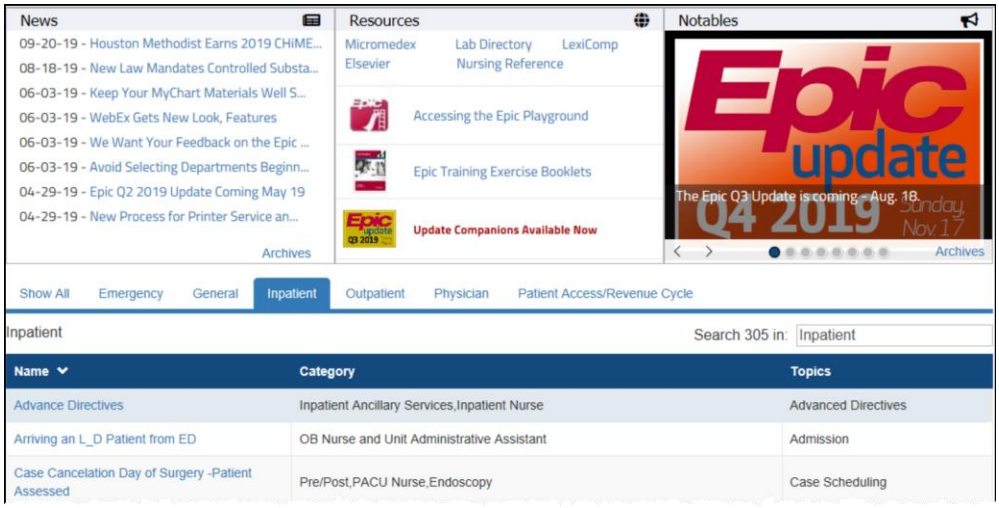
For more information and instructions on accessing your Learning Home, visit

it.houstonmethodist.org/epicupdate/



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- Various project resources, including Rover, Clinical Pathways, and FHIR Patient Education
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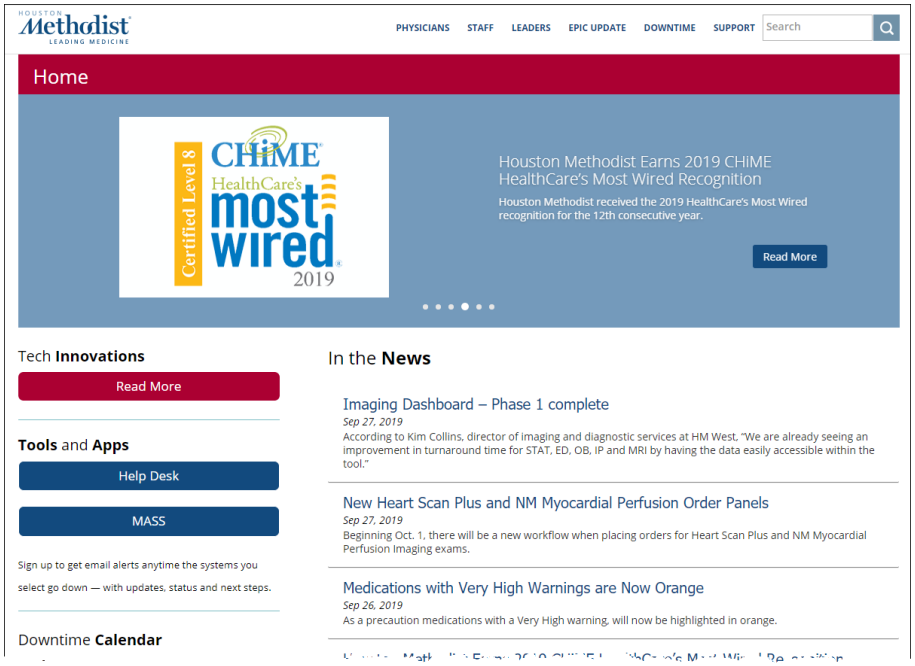

Notes