



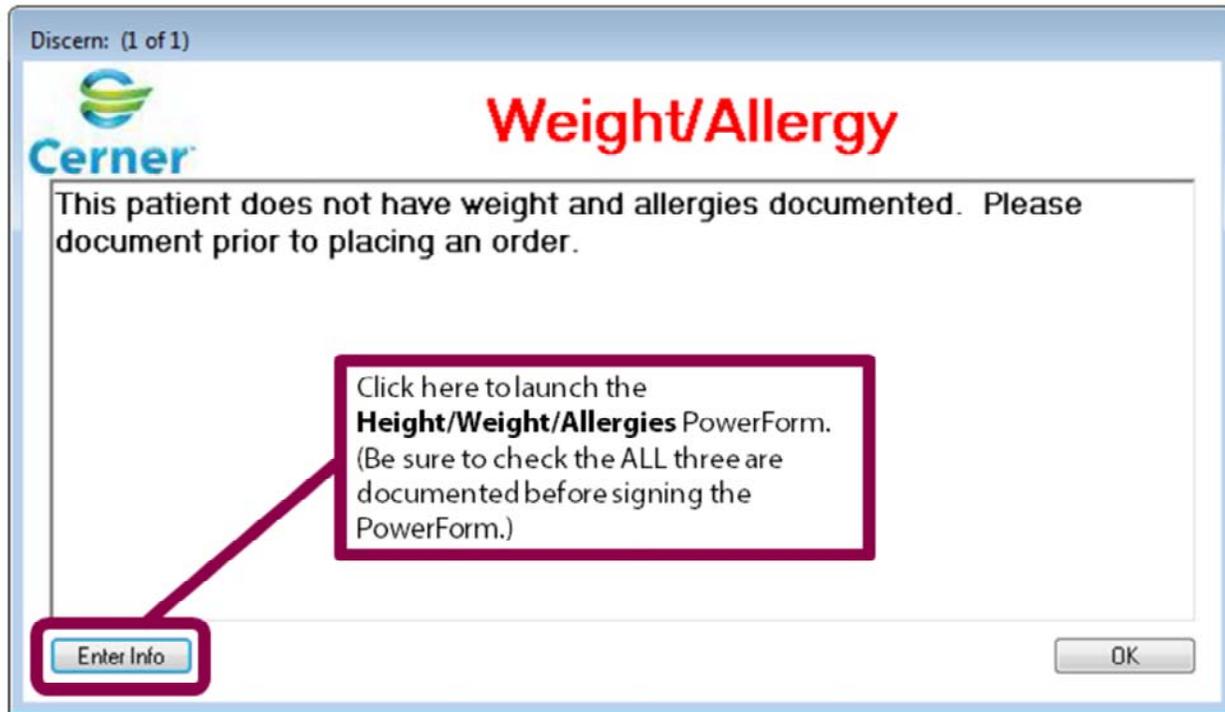
CPOE Rules, Advisors, and Alerts

Presented by
EMHS Clinical Informatics

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Height/Weight/Allergy Rule



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Medical Staff & Nurses Only: The Height/Weight/Allergy Rule causes an alert to fire to nursing and medical staff entering orders before the patient's height, dosing weight, and allergies profile has been updated on the current encounter. When presented with this window, click **ENTER NOW** to open the Height/Weight/Allergies PowerForm. Be sure that ALL three of these critical data are charted before signing the PowerForm. Once you have signed the PowerForm, click the OK button in this pop-up window to return to order entry.

Medication Clinical Decision Support (mCDS) & Multum Alerts

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Drug – Drug (Major Severity Alert)

The screenshot displays the Medication Clinical Decision Support (mCDS) window for patient TESTING, TAYLOR - 2189306. The window title is "TESTING, TAYLOR - 2189306" and it includes a search bar and a 100% zoom level. The main content area is titled "Medication Clinical Decision Support (mCDS)" and contains the following information:

- Alert Summary:** "TESTING, TAYLOR - 2189306. The order was created with the following alerts: warfarin (Coumadin) 1 mg, PO, Daily".
- Allergy Section:** "Drug/Drug (1)".
- Alert Details Table:**

DC	Severity	Medication	Details	Status	Interaction Information	Reason
<input type="checkbox"/>	Major- Contraindicated	clarithromycin (Biaxin)	500 mg = 1 TAB, PO, Every 12 Hour Interval	Ordered 03/31/2017 11:36	warfarin- clarithromycin	Select Override Reason
- Override Options:**
 - Apply to all interactions
 - Apply only to required interactions
 - Apply only to selected
- Buttons:** "Continue" and "Remove New Order".

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When a medication is being ordered that has an interaction of **MAJOR** or higher with a medication already on the patient's orders profile, a **Medication Clinical Decision Support** alert will appear. These windows contain many available options. Click the blue font to view **Interaction Information**. To discontinue the pre-existing order, place a checkmark in the box in the **DC** column and then click **Continue**. To remove the new order, click **Remove New Order**. To ignore the alert, choose an **Override Reason** from the dropdown and then click **Continue**.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select Remove New Order and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select Remove New Order and contact the orderer for clarification.

Drug - Allergy

TESTING, TAYLOR - 2189306

Medication Clinical Decision Support (mCDS) (Collapse All)

TESTING, TAYLOR - 2189306

The order was created with the following alerts:

morphine 15 mg, PO

Allergy (1)

Severity	Allergy	Medication	Details	Reaction Type	Allergy Comments	Reason
Severe	codeine	morphine	15 mg, PO	Allergy	Reaction Symptoms: Not entered Source: Not entered	Select Override Reason

Drug/Drug

Apply to all interactions
 Apply only to required interactions
 Apply only to selected

Override Reason
Select Override Reason

TESTING, TAYLOR - 2189306 [Continue](#) [Remove New Order](#)

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The mCDS alert will also appear when the patient has a documented allergy to the substance (or like substance) being ordered. The documented **Severity** displays in the first column on the left. If the **Reaction Symptoms** have been documented, they will also appear in the **Allergy Comments** column. Click the blue font for additional information. To remove the new order, click **Remove New Order**. To ignore the alert, choose an **Override Reason** from the dropdown and then click **Continue**.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select **Remove New Order** and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select **Remove New Order** and contact the orderer for clarification.

Dose Range Checking

The image shows two overlapping software windows. The top window is titled "Dose Range Alert" and features the Cerner logo. It contains the following text: "Please note the following: The ordered dose (5,000 mg PO Every 4 Hours 30 Days) is OVER the suggested dose range for this medication(acetaminophen) Suggested SINGLE DOSE range: 325 - 1,000 mg. (5,000 mg for this order.)" Below this text is an "Alert Action" section with three radio buttons: "Cancel order", "Ignore alert", and "Modify order" (which is selected). There are "Alert History" and "OK" buttons at the bottom. The bottom window is titled "Override Reason Form" and has a list box with the following options: "Benefits outweigh risks", "Disagree with recommendation", "Other (see comment)", "Patient taking/tolerated", and "Dialysis negates the issue". Below the list box is a text area for "Additional Freetext Override Reason:" and "Cancel" and "OK" buttons.

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If a medication is ordered outside pre-defined ranges, the **Dose Range Alert** will fire. The **Alert Action** section of the pop-up window allows the orderer to **Cancel** the new order, **Ignore** the alert, or **Modify** the order before signing. If **Ignore** is selected, the **Override Reason Form** will appear. Make the appropriate selection and click **OK**.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select **Cancel Order** and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select **Cancel Order** and contact the orderer for clarification.

Advisors

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Central Line & Urinary Catheter

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Discern: TESTING, 6CARDTRAINING (1 of 1)

Patient Name: TESTING, 6CARDTRAINING Sex: MALE Height: 65.52 in / 5.46 ft / 168 cm
 Location: 5BLA ,BHAL - 01 Age: 54 Years Weight: 149.60 lb / 68 kg

Central Line / Urinary Catheter Necessity Evaluation

Central Line - Left Single lumen 10 07/04/2016 PTA - Date known

Discontinue Central Line

Reason(s) to continue Central Line:

Administration of hypertonic solutions including total parenteral nutrition

Administration of vasoactive/inotropic medication which cannot be given peripherally

Hemodynamic monitoring

Long term antibiotic therapy end date mm/dd/yyyy

Venous access when no peripheral access available

Other

--Select Deferral Reason--

--Select Deferral Reason--

Advisor Entered by Mistake (wrong patient)

Defer to other Physician

Require further evaluation

Reset OK --Select Deferral Reason--



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Medical Staff Only: Medical Necessity must be documented daily for the duration of time a patient has an indwelling urinary catheter and/or central line. Once either of these line types are documented by an RN, the **Central Line/Urinary Catheter Necessity Evaluation** advisor will pop-up for the medical team each day. Choose **Discontinue Catheter/Central Line** if the line is no longer medically necessary. Be sure to return to the orders profile to **Cancel/DC** the active **Foley Catheter (Insertion)** order. Otherwise, select the appropriate **Reason(s) to continue Central Line** and then click **OK**. If you are not the responsible caregiver, select a **Deferral Reason** from the dropdown menu(s) and then click **OK**.

Venous Thromboembolism (VTE)

Discern: TESTING, TAYLOR (1 of 1)

Patient Name: TESTING, TAYLOR Sex: Female Height: 64.35 in / 5.36 ft / 165 cm
 Location: 6CARD :670 Age: 70 Weight: 173.80 lb / 79 kg

Discern Advisor® - VTE Prevention

2. Patient Type
 Medical

3. Risk Factors: (Check yes if one or more apply)

The highest risk category for patient type met due to age of patient. Please continue to next question to determine recommendation.

4. Pharmacologic Contraindications: (Check all that apply)

NONE

<input type="checkbox"/> Coagulopathy (non-therapeutic)	<input type="checkbox"/> Absolute	<input type="checkbox"/> Relative	<input type="checkbox"/> Thrombocytopenia
<input type="checkbox"/> Active Bleeding or Increased Risk of Bleeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Uncontrolled hypertension
<input type="checkbox"/> History of Heparin Induced Thrombocytopenia (HIT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Infective endocarditis
<input type="checkbox"/> Thrombolytics given within past 24 hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Active hepatitis or hepatic insufficiency
<input type="checkbox"/> Severe Trauma	<input type="checkbox"/> Other, Absolute	<input type="checkbox"/>	
<input type="checkbox"/> Spinal tap or epidural catheter within next 24 hours	<input type="checkbox"/> Other, Relative	<input type="checkbox"/>	

5. Renal Function and Rapid Onset HIT

Is Creatinine Clearance less than or equal to 30 mL/min?
 Yes No Unknown

Has the patient received unfractionated heparin within the last 100 days?
 Yes No Unknown

[Click Here for Recommendation](#)

Pharmacologic: Pick one pharmacologic agent. No relevant allergies found.

Fondaparinux is **NOT RECOMMENDED** for patients with any planned or possible invasive procedure or surgery: planned epidural, intrathecal or spinal anesthesia; planned spinal tap; critical care patients, CABG, acute trauma, neurological injuries, acute spinal cord injury, or bacterial endocarditis.

fondaparinux ---> 2.5, mg, SUBCUTANEOUS, Daily
 enoxaparin ---> 40, mg, SUBCUTANEOUS, Daily
 heparin ---> 5000, Units, SUBCUTANEOUS, Every 12 Hours

Medical Low **Medical High** Surgical Low Surgical Moderate-High Surgical Very High

[Reset](#) [Document Risk Category and Add Orders](#) --Select Deferral Reason-- [Exit](#)

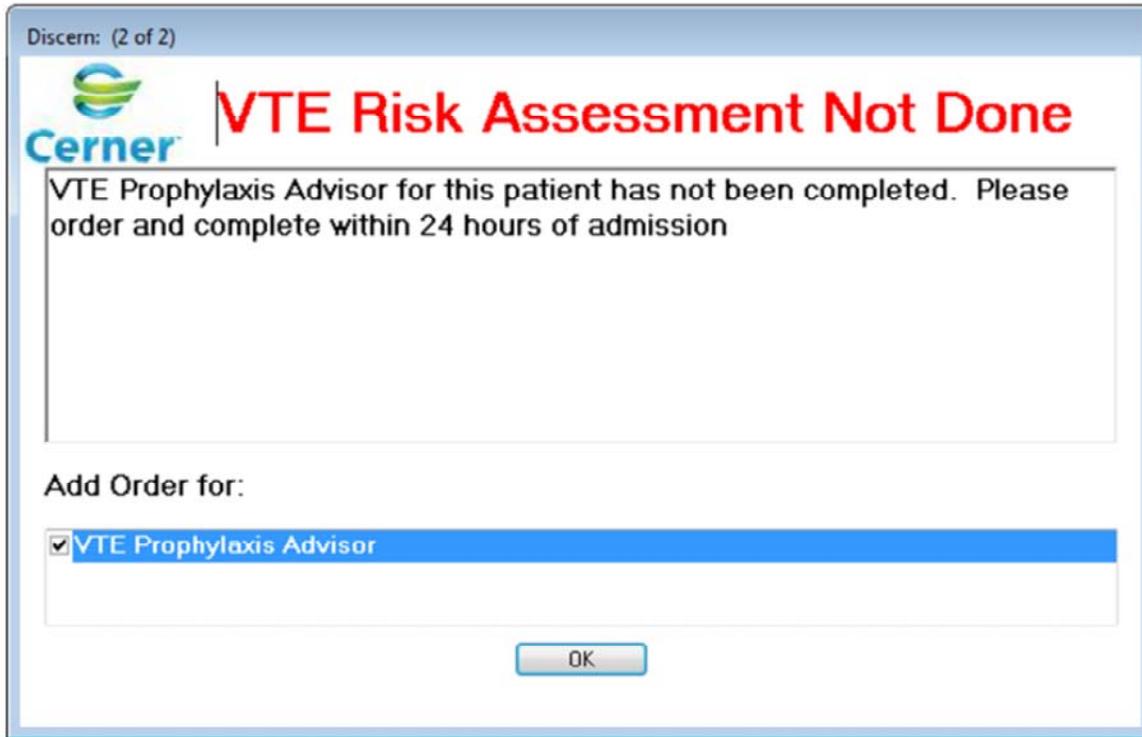
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Medical Staff Only: Medical staff must complete a **VTE Risk Assessment** at admission and upon transfer (from one level of care to another). To assist with this, a rule has been built which causes this VTE Prevention advisor to appear to the patient's physician, PA, or APN during the ordering process. The questions asked are patient-type specific and will appear as each answer is selected. Once all questions have been addressed, click the **Click Here for Recommendation** button. Depending on the responses, there may be recommended orders. Make an appropriate selection and then click **Document Risk Category and Add Orders**. This will complete the advisor and place the selected order on the patient's profile. Otherwise, select the appropriate **Reason(s) to continue Central Line** and then click **OK**. If you are not the responsible caregiver, select a **Deferral Reason** from the dropdown menu(s) and then click **Exit**.

Venous Thromboembolism (VTE)



Discern: (2 of 2)

VTE Risk Assessment Not Done

VTE Prophylaxis Advisor for this patient has not been completed. Please order and complete within 24 hours of admission

Add Order for:

VTE Prophylaxis Advisor

OK



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Medical Staff: The VTE Risk Assessment advisor on the last slide is generated automatically when Admission PowerPlans are initiated and when the Transfer Review Complete order is placed. In the event that a physician, PA, or APN has deferred to another member of the team, this alert will fire to all medical staff entering orders until the advisor has been completed. If presented with this alert, click OK to launch the advisor window. Complete the advisor, being sure to click the **Click Here for Recommendation** button. Depending on the responses, there may be recommended orders. Make an appropriate selection and then click **Document Risk Category and Add Orders**. This will complete the advisor and place the selected order on the patient's profile. Otherwise, select the appropriate **Reason(s) to continue Central Line** and then click **OK**. If you are not the responsible caregiver, select a **Deferral Reason** from the dropdown menu(s) and then click **Exit**.

Rules

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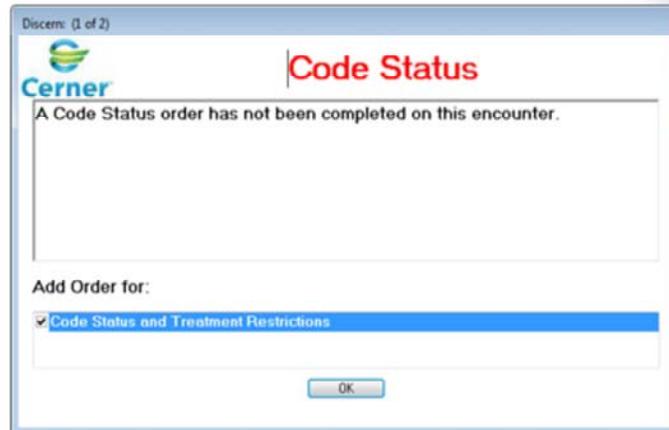


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Code Status

The code status rule will begin firing to the medical care team (physicians, PAs, and APNs) **12 hours** after admission to the hospital, if the code status has not been ordered.

When OK is clicked, the Code Status order will be added, requiring the provider to address any missing details.



The screenshot shows a Cerner alert dialog box titled "Code Status". The window title is "Discern: (1 of 2)". The Cerner logo is in the top left. The main text reads: "A Code Status order has not been completed on this encounter." Below this is a section labeled "Add Order for:" with a single option, "Code Status and Treatment Restrictions", which is selected with a checkmark. An "OK" button is located at the bottom right of the dialog.

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Medical Staff Only: If a Code Status has not been ordered within 12 hours of admission, members of the medical staff will receive this alert during order entry. Click **OK** to proceed with creating the **Code Status** order.

Latex Allergy – Nuclear Medicine

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Discern: (2 of 2)

Cerner

Latex Allergy

The patient has a documented latex allergy. Refer to Suggested Plans in the navigator band on the Orders Profile once the latex containing order is placed. Then initiate the allergy prophylaxis PowerPlan if appropriate.

Alert Action

Cancel Brain Scan Nuc Med NM

Latex URL OK



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When a nuclear medicine scan is being ordered for a patient with a documented Latex allergy, this alert will fire. Click the **Latex URL** button for more information about the alert, if desired. Place a checkmark in the box next to **Cancel** order in the **Alert Action** section, if appropriate and click **OK**. Otherwise, to keep the order, click the **OK** button.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select **Cancel** order and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select **Cancel** order and contact the orderer for clarification.

Medication Renewal

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Discern: Open Chart - TESTING, WYATT (1 of 1)



Medication Renewal

Provider, please review the following medications that are scheduled to stop within the next 48hrs

metoprolol (Lopressor), 1 TAB, PO, Daily Stop DtTm: 02/04/17 09:00 Ordered By: TEST MD, PROVIDER

amoxicillin (Amoxil), 1 TAB, PO, Saturday Stop DtTm: 02/04/17 10:00 Ordered By: TEST, LOGICIAN

**** END OF LIST ****

OK



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Medical Staff & Nurses Only: If there are medications on the patient's orders profile due to expire within the next 48 hours, this alert will pop-up when the chart is opened.

Contrast Procedure Ordered for Patient Taking Metformin

Discern: (1 of 2)

Contrast Procedure/Metformin Order

This patient is taking Metformin. Metformin is contraindicated in the presence of intravascular iodinated contrast media. Please consider if Metformin is appropriate at this time. Preferably hold 48 hrs post procedure.

Alert Action

Cancel CT Neck with Contrast 70491

OK

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When an imaging study with IV contrast is being ordered for a patient on metformin, this alert will fire. Place a checkmark in the box next to **Cancel** order in the **Alert Action** section, if appropriate and click **OK**. Otherwise, to keep the order, click the **OK** button.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select **Cancel** order and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select **Cancel** order and contact the orderer for clarification.

Metformin Ordered for Patient with Recent/Scheduled Contrast Procedure

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Discern: (1 of 1)

Contrast Procedure/Metformin Order

You have ordered metFORMIN . (metFORMIN). This patient has a procedure with IV contrast ordered. Metformin is contraindicated in the presence of intravascular iodinated contrast media. Please consider if Metformin is appropriate at this time. Preferably hold 48 hrs post procedure.

Alert Action

Cancel Medication Order

Ignore Medication Alert

OK



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When metformin is being ordered for a patient with a recent/scheduled imaging study with IV contrast, this alert will fire. Select the radio button next to **Cancel Medication Order** in the **Alert Action** section, if appropriate and click **OK**. Otherwise, to keep the order, select **Ignore Medication Alert** and click the **OK** button. The **Override Reason Form** will appear.

Position-Specific Instructions

Unit Secretary/Unit Coordinator: Select **Cancel Medication Order** and notify the nurse so that clarification can be obtained from the ordering physician.

Registered Nurse: If encountered while taking a verbal order, follow physician instructions. Otherwise, select **Cancel Medication Order** and contact the orderer for clarification.

Non-Initiated PowerPlan (Inpatient)

Discern: Close Chart - TESTING, SVHINPT1 (1 of 1)



Planned PowerPlans

The following PowerPlans are in a planned state. No orders will be carried out until the plan is initiated. Please go to the Orders Profile to initiate the plan.

Potassium Protocol (PO - Liquid) Adult - Planned: 02/11/15 14:48:07

OK

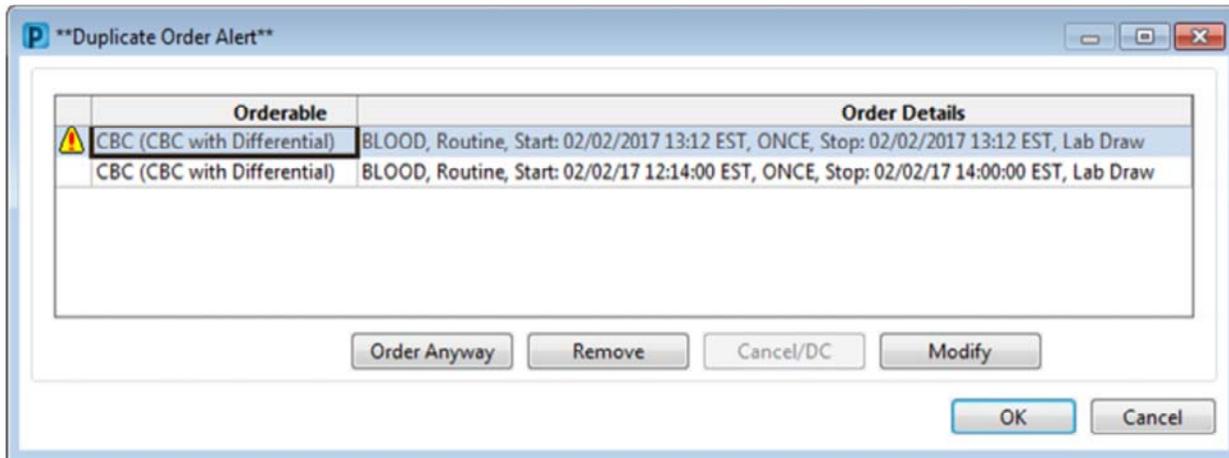
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Medical Staff Only: Orders in PowerPlans in the Planned state are not active. Medical staff will be notified of the presence of un-initiated PowerPlans upon entering the patient's chart.

Duplicate Order Alert



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Certain order types will fire duplicate alerts. Examples include: Labs, Medical Imaging Studies, Code Status, Diet. When presented with a duplicate alert, consider the order type and details. There are times when it's perfectly appropriate to have more than one order for the same item, e.g. STAT lab with follow-up lab in the AM. There are other times when it's not appropriate to have a duplicate, e.g. Code Status. Use the buttons at the bottom of the window to handle the others appropriately. To perform an action on one of the orders, click to highlight the order before clicking the appropriate button.

Vaccine Alert

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The image shows two overlapping windows from an EMR system. The background window is titled "Vaccine Alert(influenza) Form - TESTING, ABIGAIL L". It contains the following text:

*Performed on: 02/06/2017 1311 EST By: ZZ, EVRN

Vaccine Administration Overdue

This patient has an order for Influenza Vaccine. Administer this dose as soon as possible.

This is part of a quality of care initiative.

Yes I understand that I will continue to receive this alert until the task is charted.

In Progress

The foreground window is titled "Discern: Open Chart - TESTING, ABIGAIL L (2 of 2)". It features the Cerner logo and the text:

Vaccine Alert(Influenza)

This patient has an order for Influenza Vaccine that is now overdue.

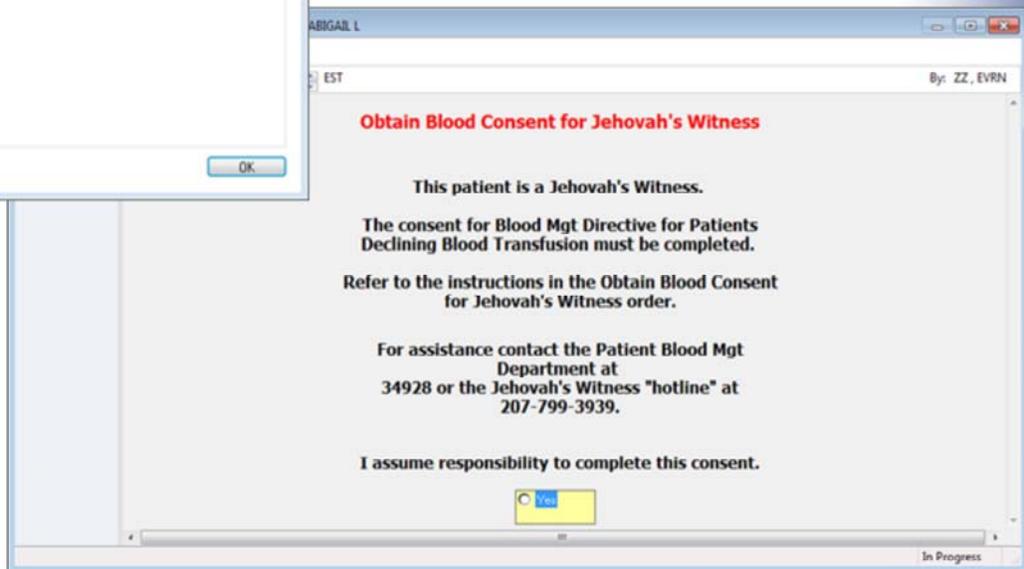
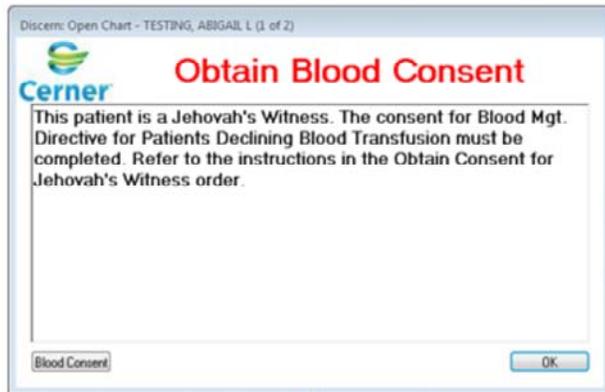
Buttons: Open Form, OK



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Nurses Only: The **Vaccine Alert** will fire to nursing staff upon entering the patient's chart when an ordered vaccine has not been administered and documented. When presented with this window, click **Open Form**. Acknowledge the **Vaccine Administration Overdue** statement and then sign the PowerForm. Once you have signed the PowerForm, click the **OK** button in this pop-up window to return to the patient chart view. Be sure to administer and document the vaccine as appropriate.

Blood Consent for Jehovah's Witness (Nursing)



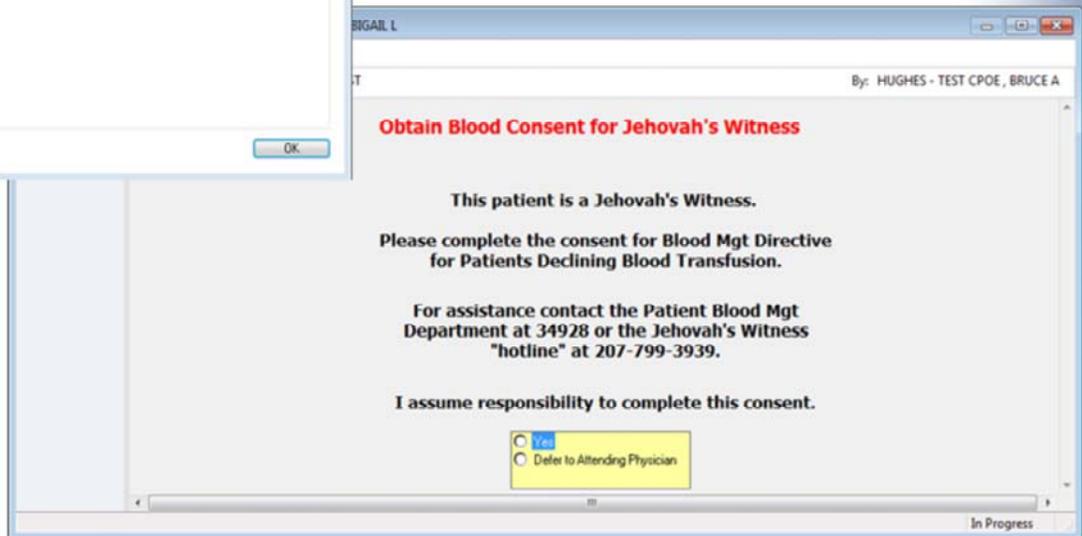
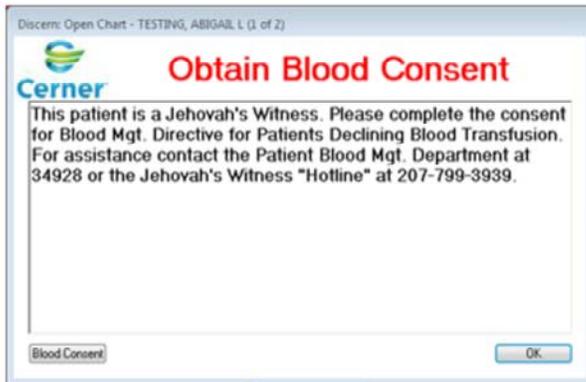
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Nurses Only: The **Obtain Blood Consent** alert will fire to nursing staff upon entering the patient's chart when a patient is a documented Jehovah's Witness. When presented with this window, click **Blood consent**. Acknowledge the **Obtain Blood consent for Jehovah's Witness** statement and then sign the PowerForm. Once you have signed the PowerForm, click the **OK** button in this pop-up window to return to the patient chart view. Be sure to follow-up appropriately.

Blood Consent for Jehovah's Witness (Medical Staff)

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Medical Staff Only: The **Obtain Blood Consent** alert will fire to medical staff upon entering the patient's chart when a patient is a documented Jehovah's Witness. When presented with this window, click **Blood consent**. Acknowledge the **Obtain Blood consent for Jehovah's Witness** statement (by either assuming responsibility or deferring to another physician) and then sign the PowerForm. Once you have signed the PowerForm, click the **OK** button in this pop-up window to return to the patient chart view. Be sure to follow-up appropriately.