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# **Optimizing the Working DRG and Revenue Cycle Through Real-Time Physician Notifications**

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Feb 28, 2023

# Speakers



**Michael John Davis, MD**  
Associate CMIO, Acute Care  
Director of Inpatient Systems  
Tufts Medical Center



**Patricia Chua, RHIT, CCS, CCDS**  
President  
Innova Revenue Group



**Gerry Petratos, MD, MS**  
CEO  
Hitek Solutions





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# CDI CASE EXAMPLES

## Query Challenges

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**Patricia Chua**, RHIT, CCS,  
CCDS President  
Innova Revenue Group

**Patricia Chua, RHIT, CCS, CCDS, is the COO for Innova Revenue Group. She has more than 20 years of experience in the HIM/CDI/coding industry and is one of the nation's foremost experts in coding and clinical documentation integrity (CDI). She is proficient in all aspects of CDI, revenue optimization, inpatient and outpatient coding, auditing, charge capture, and regulatory compliance.**

INNOVA Revenue Group is a small company with the main purpose of assisting organizations to achieve their financial, organizational, and operational goals. INNOVA Revenue Group provides short-term, interim, and long-term end-to-end revenue cycle services for a variety of specialties and facilities that include acute care community hospitals, critical access hospitals, home health facilities, long-term care facilities, ambulatory surgery centers, outpatient clinics, individual provider practices, long-term care hospitals, and psychiatric hospitals. Our cost-effective support/solutions help any size health system or group maximize revenue cycle compliance, efficiency, and productivity.

# Case #1 Debridement



**Case Scenario:** Patient presented with sepsis and was found to have an abscess in the right hand as well as right wrist septic joint. He was taken to the OR for incision and drainage. Blood cultures became positive for MSSA.

## **Procedure Note:**

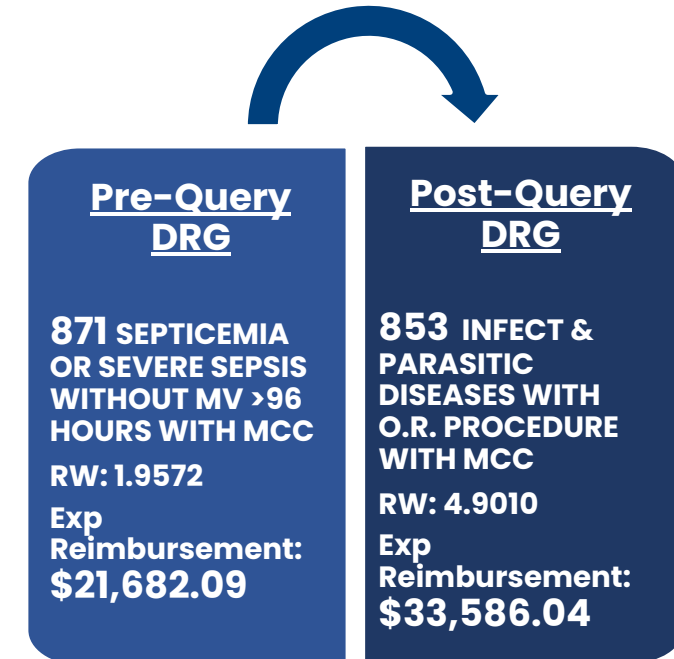
1. Irrigation and debridement of skin, subcutaneous tissue, and muscle for abscess, right thenar musculature.

Careful dissection was carried down through the skin and subcutaneous tissue bluntly. There did not appear to be any new pus; however, we did take cultures. The area was thoroughly irrigated, first with saline and then a 3-minute IriSept soak was done and then he was irrigated with saline. Any marginal-appearing tissue was sharply debrided with tenotomy scissors and removed. The area was packed open.

# Case #1 Debridement

**Query Opportunity:** CDI sent a concurrent query for debridement.

- Excisional vs. non-excisional
- Type of instrumentation used
- Depth of debridement (skin, subcutaneous, soft tissue, muscle, bone)
- Wound measurements
- Type of tissue excised



The provider responded to the query two days after the patient was discharged. **Response: "The OP note describes the procedure sufficiently."**  
CDI responded that we needed further details to properly code the procedure.



On the 4<sup>th</sup> day post discharge, the provider responds to the query that **"My note says removed; this is a synonym for excised. I don't see a need to modify that."** CDI ask that the provider please call to discuss.



On the 8<sup>th</sup> day post-discharge, the provider updated the OP report to include the debridement documentation specifics.



# Case #2 Pneumonia



**Case Scenario:** Patient admitted for acute blood loss anemia in the context of GI bleeding. EGD showed multiple gastric and duodenal ulcers. The patient also with cough and dyspnea. Admitting chest x-ray showed possible RLL infiltrate. The patient was started on Azithromycin. Subsequent chest CT scan showed airway thickening and ground-glass opacities. The patient started on Vancomycin.

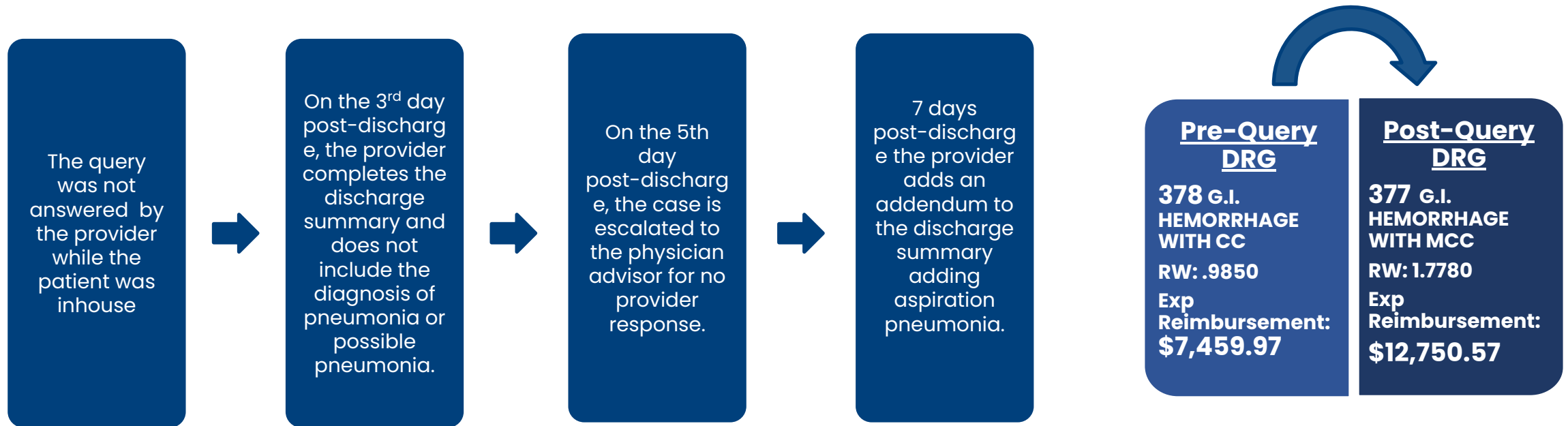
**Progress Notes:**

"Patient with possible RLL pneumonia"

**Query Opportunity:** CDI sent a concurrent query for pneumonia specificity and if it was a definite diagnosis.

- Aspiration pneumonia supported with the use of Vancomycin.

# Case #2 Pneumonia





# Case #3 Malnutrition



**Case Scenario:** Patient admitted with a history of metastatic pancreatic cancer who is admitted to the ICU following a biliary drain placement for a bile duct obstruction.

## **Progress Note:**

# Poor nutrition

-Has some element of gastric obstruction based on EGD

Dietician assessment ordered

## **RD Note:**


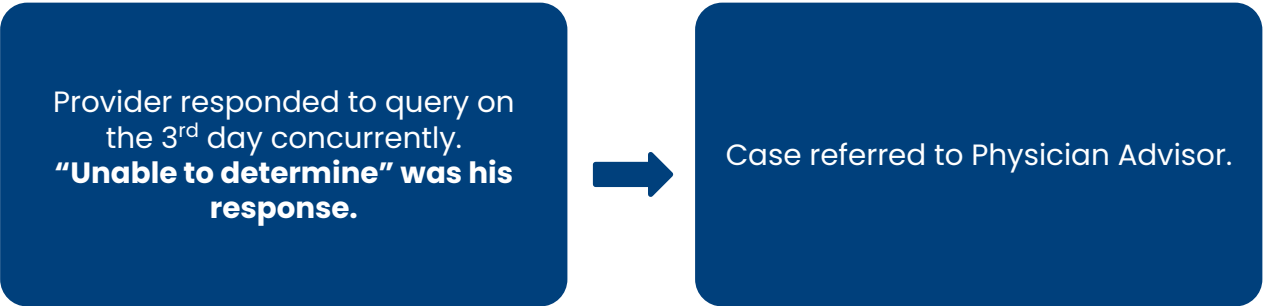
Patient meets ASPEN criteria for moderate protein-calorie malnutrition as evidenced by the following:

Weight loss: 17.87% in the last 6 months

Insufficient energy intake: < 75% (average) of estimated energy requirement for > 7 days. Of note, patient has been able to eat > 75% of some meals recently; ate 100% of lunch today per nursing documentation.

# Case #3 Malnutrition

**Query Opportunity:** CDI sent a concurrent query for the malnutrition degree.



<u>Pre-Query DRG</u>	<u>Missed DRG Opp</u>
<b>446 DISORDERS OF THE BILIARY TRACT WITHOUT CC/MCC</b>	<b>445 DISORDERS OF THE BILIARY TRACT WITH CC</b>
<b>RW: .8117</b>	<b>RW: 1.0996</b>
<b>Exp Reimbursement: \$6,303.77</b>	<b>Exp Reimbursement: \$8,224.53</b>



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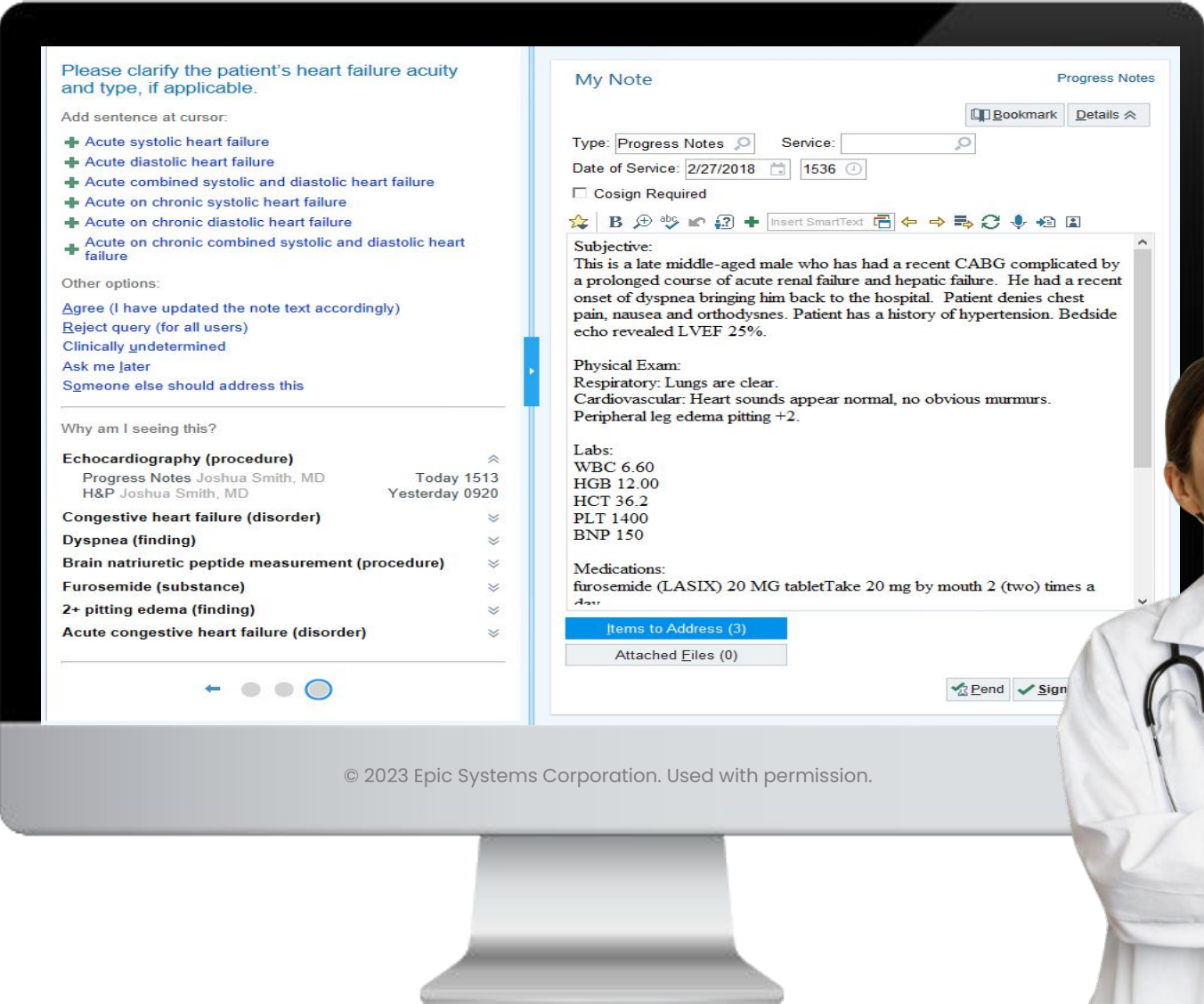
# AI Solution: CAPD360 Insight

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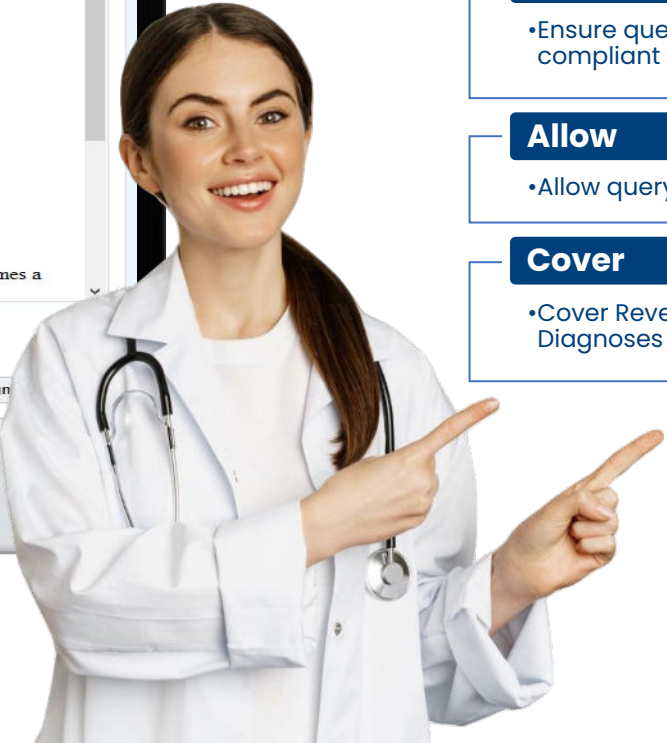


# CAPD360 Insight For NoteReader CDI

## Computer-Assisted Physician Documentation



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### Present

- Present queries as soon as possible while case details are still top of mind

### Remain

- Remain completely in Epic so providers don't need toggle between screens

### Ensure

- Ensure queries are clinically justified and compliant without over-prompts

### Allow

- Allow query logic & workflow to be customized

### Cover

- Cover Revenue, Risk and Quality Sensitive Diagnoses

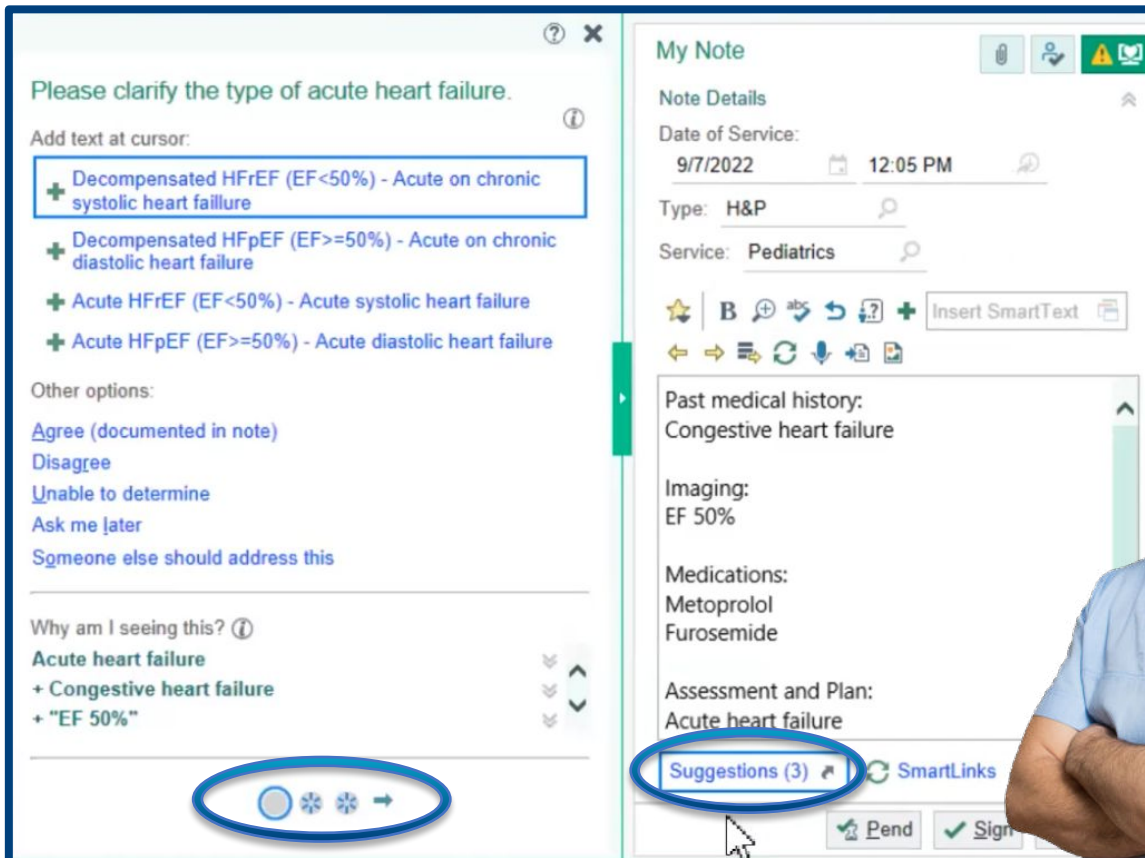




# ►Epic's Gold Standard CDI Workflow App

Epic's ONLY Embedded Note Editor within the EHR note screen

Complete provider documentation for quality rankings & compliant reimbursement



The screenshot displays the Epic's Gold Standard CDI Workflow App interface. On the left, a panel titled "Please clarify the type of acute heart failure." contains a list of options for adding text at the cursor: "Decompensated HFrEF (EF<50%) - Acute on chronic systolic heart failure", "Decompensated HFpEF (EF>=50%) - Acute on chronic diastolic heart failure", "Acute HFrEF (EF<50%) - Acute systolic heart failure", and "Acute HFpEF (EF>=50%) - Acute diastolic heart failure". Below this, "Other options:" include "Agree (documented in note)", "Disagree", "Unable to determine", "Ask me later", and "Someone else should address this". A section "Why am I seeing this?" shows "Acute heart failure" with sub-items "+ Congestive heart failure" and "+ 'EF 50%'". At the bottom left, a blue oval highlights a set of navigation icons. The main right panel, titled "My Note", shows "Note Details" with "Date of Service: 9/7/2022 12:05 PM", "Type: H&P", and "Service: Pediatrics". It includes a rich text editor with "B" (bold) and "Insert SmartText" buttons. Below the editor, "Past medical history:" lists "Congestive heart failure", "Imaging:" lists "EF 50%", "Medications:" lists "Metoprolol" and "Furosemide", and "Assessment and Plan:" lists "Acute heart failure". A blue oval highlights the "Suggestions (3)" link at the bottom of the right panel. At the very bottom, "Pend" and "Sign" buttons are visible.



# Realize the Power of Concurrent, Proactive CDI



## Embedded Editor



**My Note**

Note Details

Date of Service: 9/7/2022 12:05 PM

Type: !

Service: Pediatrics

✪ | B | Insert SmartText

↩ →

Past medical history:  
Congestive heart failure

Imaging:  
EF 50%

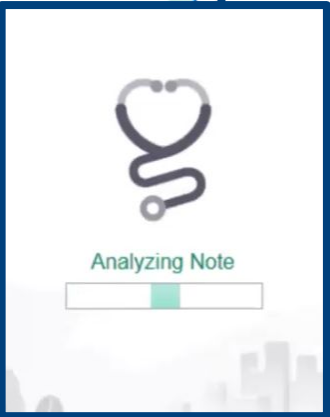
Medications:  
Metoprolol  
Furosemide

Assessment and Plan:  
Acute heart failure

Analyze Note SmartL

Pend

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## Care Team Mode



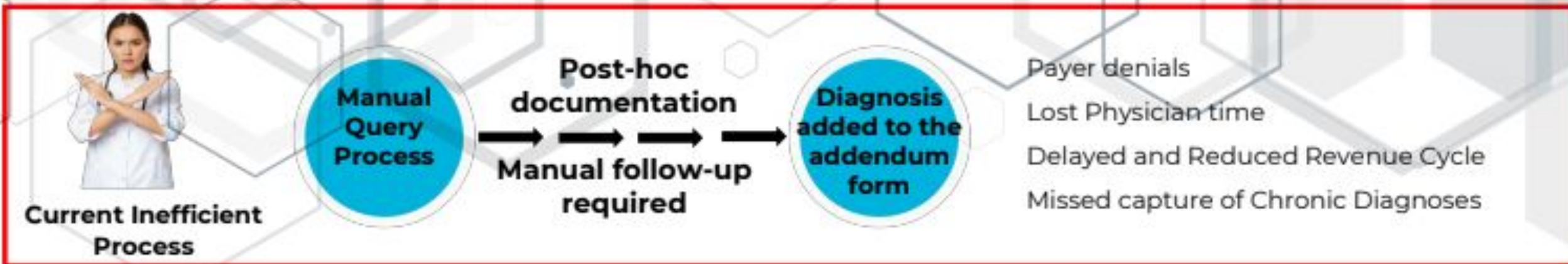


# Physician Workflow with CAPD360

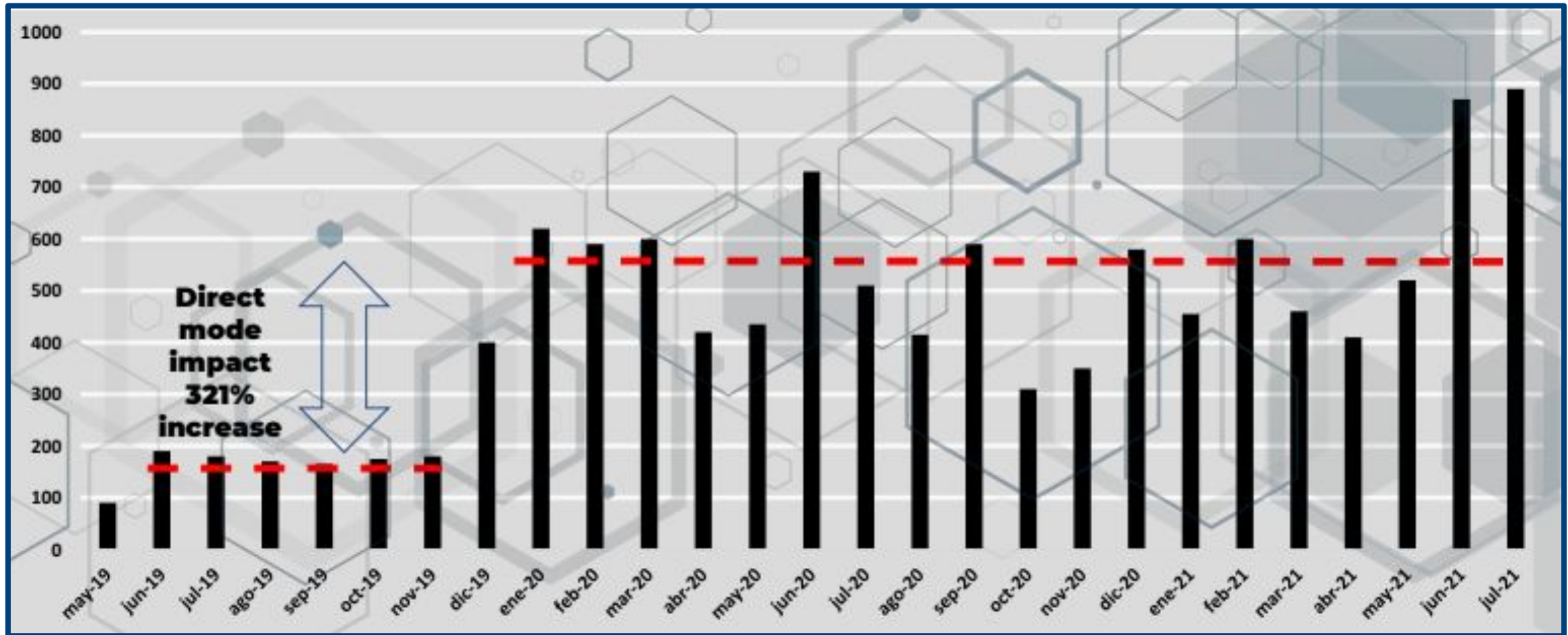
## HITEKS™ Epic-Integrated Tools



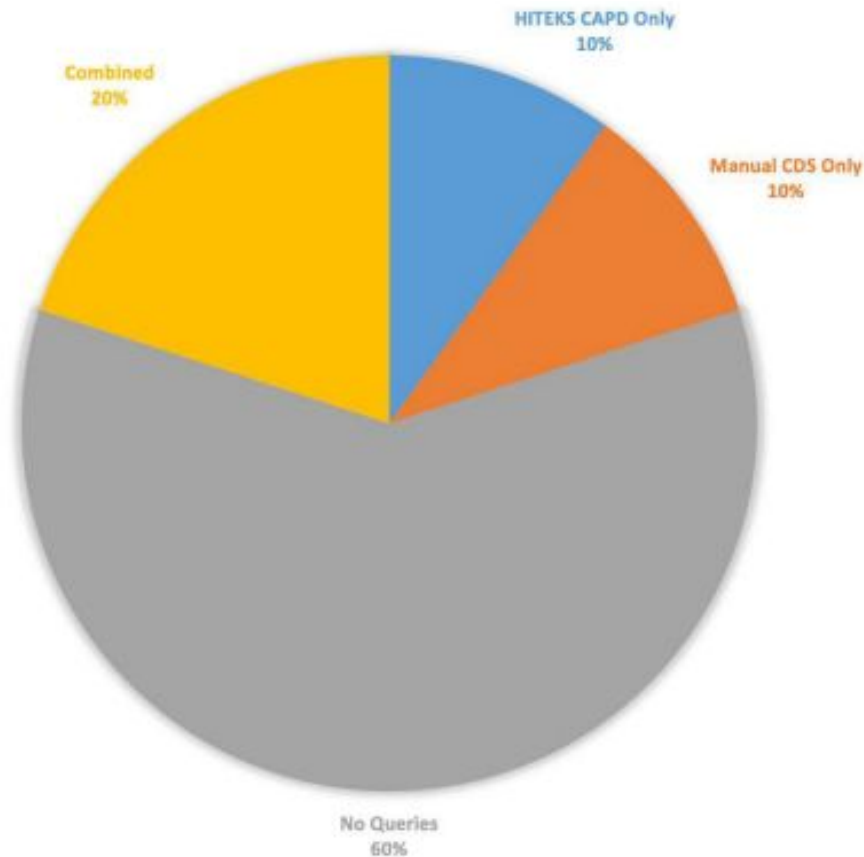
## Manual or No Concurrent System (without HITEKS)



# 3x Greater Physician Response to Queries Before Discharge



# Revenue Opportunities



**The sooner the physician receives a query, the sooner and more accurately they are to respond.**

- Revenue increases are 3% per queried account (~30%) = ~\$10,000 per inpatient bed
- All HITEKS clients have their Medicine CMI > 50% nationally

# Embedded, Direct & Silent Modes

## Embedded Direct Mode

Presented to Individual Providers with notification under their Note (not via inbasket/email)

Uses Note side-bar: Query Title, Suggestions & Evidence

Reduce denials from changed documentation  
Reduce overall query burden

## Care Team Direct Mode

Presented to all Providers of Record for Signed Notes

Uses Preferred Screens: Note Side-bar, To-Do List, Patient List

Increase responses by providers before discharge by 321%

## Silent Mode to CDS

Presented "Silently" in Epic Work Queues (E.g. Complex Queries like Sepsis)

Automates Sending to Provider in Preferred Screens

Follow-up for Queries that are not responded to



# Extensive Query Library



## HCC, MS-DRG, MS-DRG Base, APR Base, APR SIO/ROM Impact



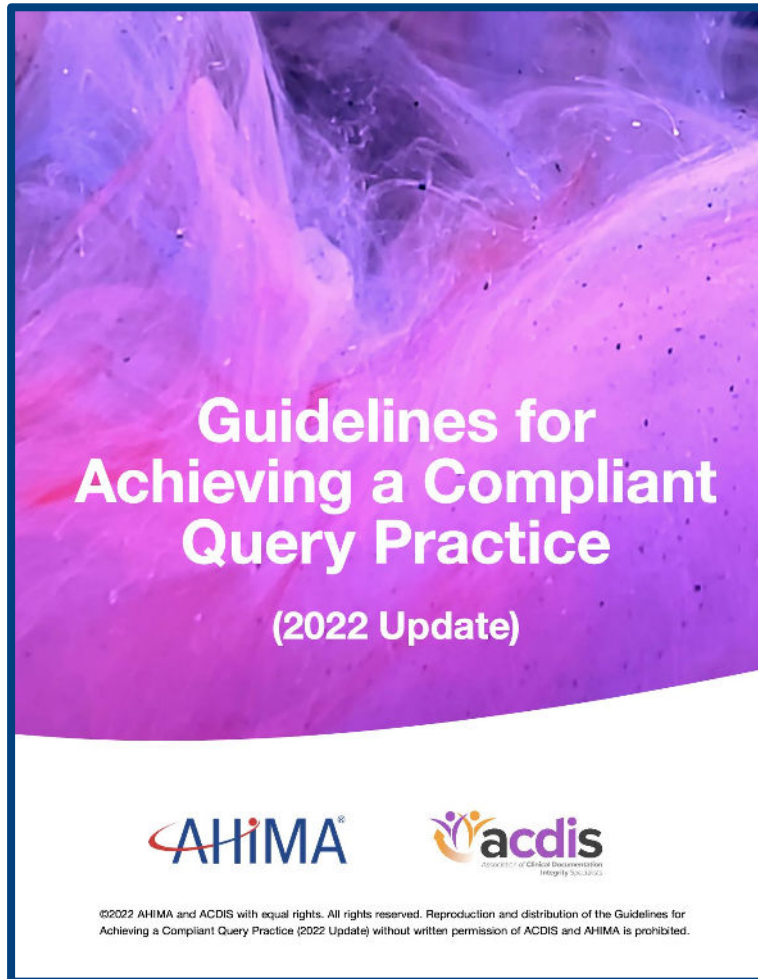
Abdominal Pain	Acute COPD/Asthma	Hypomagnesemia
Abnormal CXR on Antibiotic	Cor Pulmonale	Hyponatremia
Acidosis	Debridement	Hypophosphatemia
Acute Blood Loss	Diabete Mellitus Hyperglycemia	Incision and drain
Acute Heart Failure	Diabetic Hyperosmolarity	Malignant Hypertension
Acute Hypercapnic Respiratory Failure	Diabetic Ketoacidosis	Nicotine Withdrawal
Acute Hypoxic Respiratory Failure	Drug Overdose	Pneumonia Specificity
Acute Myocardial Infarction	DVT	Pulmonary Embolism POA
Acute on Chronic Diastolic Heart Failure	Dysphagia Phase	Respiratory Failure
Acute on Chronic Systolic Heart Failure	Elevated lactate with Sepsis (Severe Sepsis)	Sepsis
Acute Respiratory Failure	Elevated Troponin	Sepsis with specific sources of infection
Acute tubular necrosis	Fracture	Shock
AIDS/HIV	Gastroenteritis	Simple Pneumonia
ARDS	Hepatic Failure Severity	SIRS
Asthma Severity	HIV - Symptomatic/Asymptomatic	Spinal Cord Edema
Acute Asthma/COPD	Hypercalcemia	Thiamine Deficiency
Atrial Fibrillation	Hyperkalemia	Thrombocytopenia
Bowel Obstruction	Hypernatremia	Uncontrolled diabetes
Child Abuse	Hyperphosphatemia	Urosepsis
Chronic Heart Failure Type	Hypertension	UTI
Coma	Hypocalcemia	UTI Linkage to catheter
Complex Pneumonia	Hypokalemia	

## Elixhauser-Focused Queries



Anemia - Macrocytic	Lymphoma
Anemia - Microcytic	Malnutrition
Brain Hemorrhage	Metabolic Encephalopathy
Cause of Delirium	Midline Shift
Cerebral Edema	Mild/Moderate Malnutrition
Chronic Kidney Disease	Morbid Obesity >35+ & >40
CVA	Obesity BMI>30
Cause of Delirium	Pancytopenia
Drug induced hemorrhage disorder	Portal Hypertension
Encephalopathy	Pulmonary Embolism Specificity
End-Stage Renal Disease	Pulmonary Hypertension
Fluid Overload	Right Heart Failure Etiology
GI Bleeding + Ulcer	Septic Encephalopathy
Hepatic Encephalopathy/Failure	Severe Malnutrition
HFpEF with EF >=50%	Solid Cancer
HFrEF with EF<50%	Subdural Hemorrhage/Hematoma
Hypertensive Encephalopathy	Toxic Encephalopathy
Hypothyroidism	Uncontrolled diabetes
Immobility Status	Underweight
Leukemia	

# Compliant Query Practices\* Followed by HITEKS



1. All queries are memorialized
2. Query titles and suggestions are not leading
3. Query formats follow the Guidelines
4. Provider queries include relevant clinical indicator(s)
5. Undocumented diagnoses are not specifically suggested
6. Choices provided as part of the query reflect patient-specific conclusions
7. Prior information from other encounters is limited
8. Links are provided to access the clinical indicators.
9. Impact on reimbursement, payment methodology, quality metrics or severity of illness are not indicated in the query process



# CAPD360 Functionality Overview



1. Provider Workflow
2. CDI Workflow
3. Query Configuration
4. Reporting



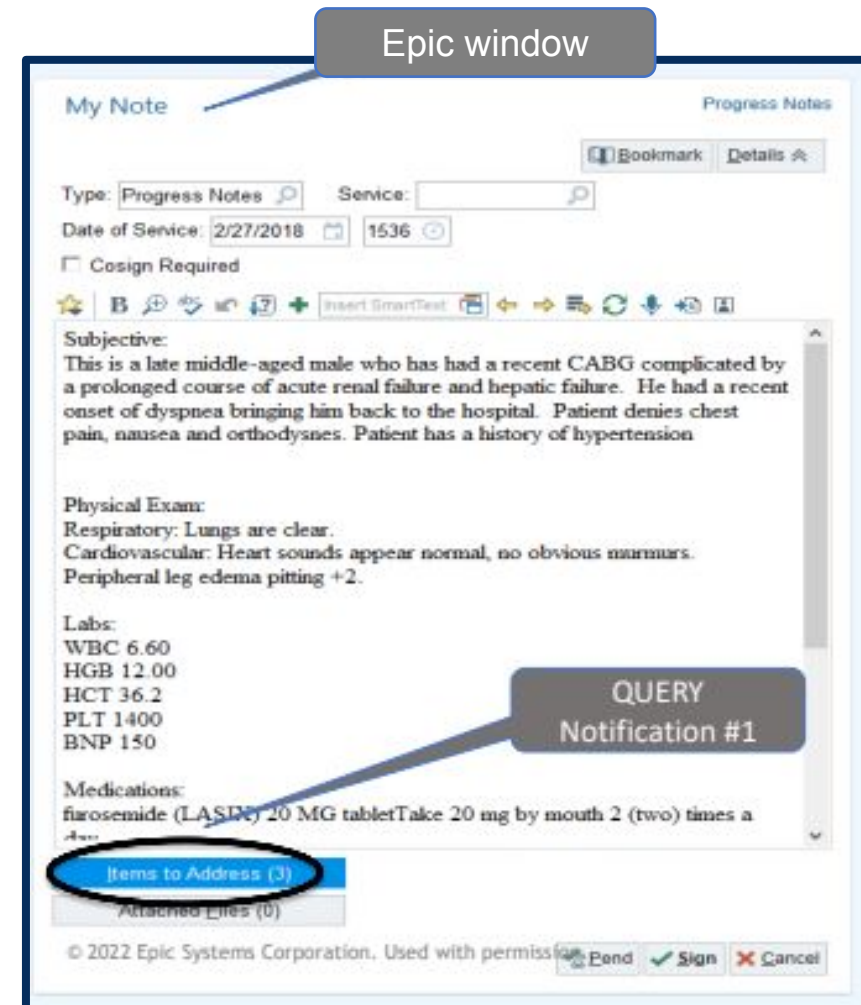
- **Supports physician compliance with Documentation**

- Available at convenient points in clinical workflows
- Provider types, dictates or transcribes Responses

- **Query appears one second after pended or signed note**

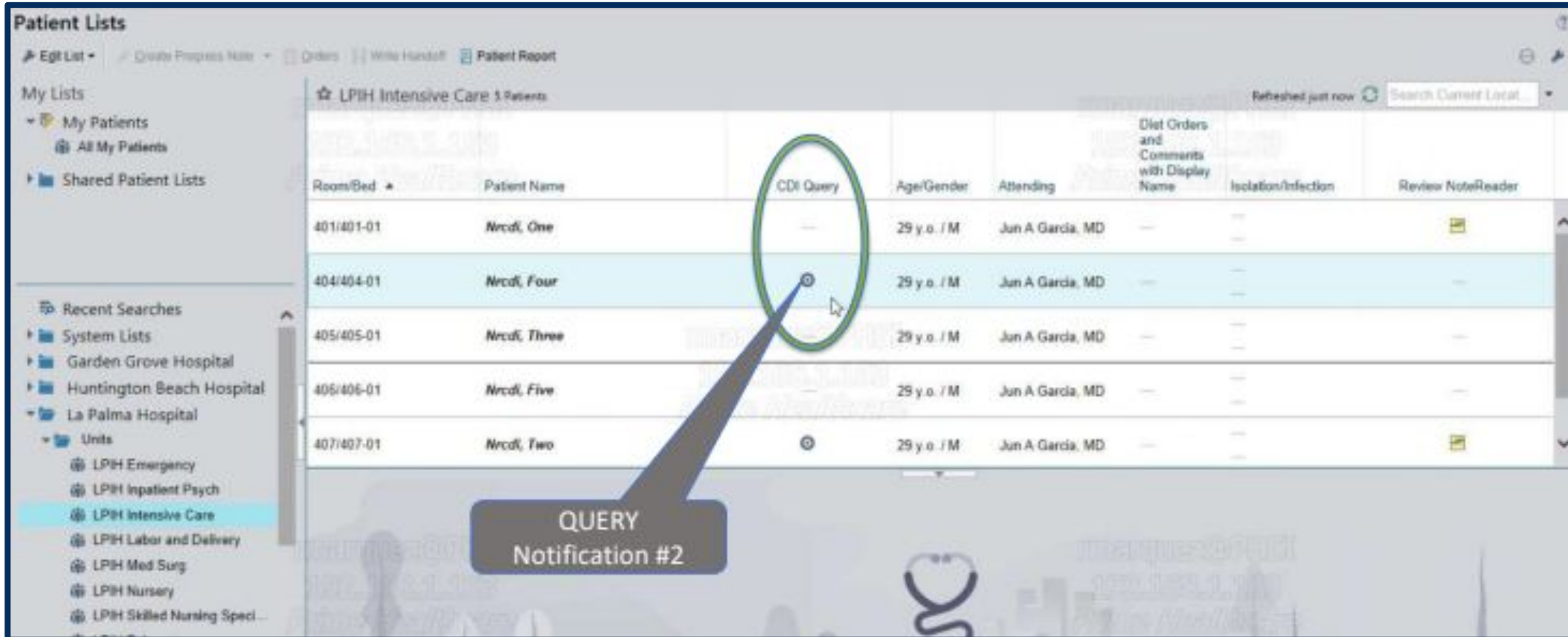
- Only the author for pended notes
- All providers for signed notes

- Notification in “Items to Address”



The screenshot shows the Epic 'My Note' window. At the top, a callout points to the 'My Note' tab. The window displays a progress note for a patient. The 'Type' is 'Progress Notes' and the 'Service' is '1536'. The 'Date of Service' is '2/27/2018'. The 'Cosign Required' checkbox is unchecked. The 'Subjective' section contains a paragraph about a patient with a recent CABG. The 'Physical Exam' section contains details about respiratory, cardiovascular, and peripheral leg edema. The 'Labs' section lists WBC, HGB, HCT, PLT, and BNP values. The 'Medications' section lists furosemide. A 'QUERY Notification #1' is displayed. At the bottom, the 'Items to Address (3)' button is highlighted with a red circle. The 'Attached Files (0)' button is also visible. The footer shows the copyright notice for Epic Systems Corporation and the 'Pend', 'Sign', and 'Cancel' buttons.

# Query can be seen and accessed in the Provider's Patient List



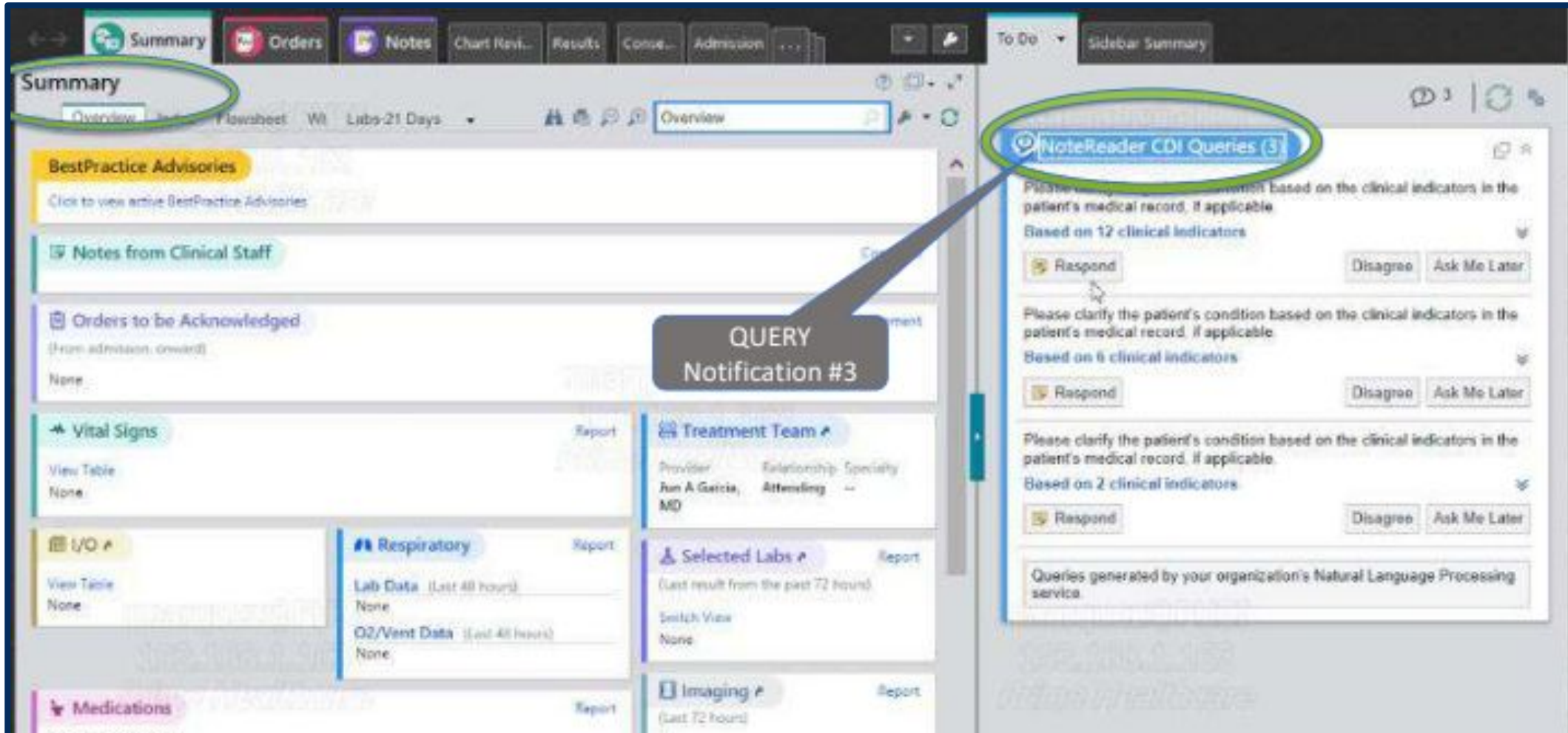
The screenshot displays the 'Patient Lists' interface in Epic. On the left, a sidebar shows 'My Lists' with 'My Patients' and 'Shared Patient Lists'. Under 'Shared Patient Lists', 'Recent Searches' and 'System Lists' are visible. The 'System Lists' section includes 'Garden Grove Hospital', 'Huntington Beach Hospital', and 'La Palma Hospital'. Under 'La Palma Hospital', 'Units' are listed, with 'LPiH Intensive Care' highlighted. The main area shows a table of patients in the 'LPiH Intensive Care' unit. A green circle highlights a 'CDI Query' icon in the 'CDI Query' column for the patient 'NrcdL, Four'. A callout box labeled 'QUERY Notification #2' points to this icon.

Room/Bed	Patient Name	CDI Query	Age/Gender	Attending	Diet Orders and Comments with Display Name	Isolation/Infection	Review Note/Reader
401/401-01	NrcdL, One	—	29 y.o. / M	Jun A Garcia, MD	—	—	—
404/404-01	NrcdL, Four	ⓘ	29 y.o. / M	Jun A Garcia, MD	—	—	—
405/405-01	NrcdL, Three	—	29 y.o. / M	Jun A Garcia, MD	—	—	—
406/406-01	NrcdL, Five	—	29 y.o. / M	Jun A Garcia, MD	—	—	—
407/407-01	NrcdL, Two	ⓘ	29 y.o. / M	Jun A Garcia, MD	—	—	—

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# Provider Workflow: Query can be seen in “To-Do” Sidebar



The screenshot displays the Epic Summary page. The top navigation bar includes tabs for Summary, Orders, Notes, Chart Rev., Results, Consequence, Admission, and To Do. The 'Summary' tab is selected and circled in green. The 'To Do' sidebar on the right is also visible, with a green circle highlighting the 'NoteReader CDI Queries (3)' item. A callout box labeled 'QUERY Notification #3' points to the first query in the list. The query text reads: 'Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable. Based on 12 clinical indicators.' Below the text are buttons for 'Respond', 'Disagree', and 'Ask Me Later'. The sidebar also shows other queries and a note at the bottom: 'Queries generated by your organization's Natural Language Processing service.'

**Summary**

Overview | Flowchart | W | Labs-21 Days | Overview

**BestPractice Advisories**

Click to view active BestPractice Advisories

**Notes from Clinical Staff**

**Orders to be Acknowledged**

(From admission onward)

None

**Vital Signs**

View Table

None

**I/O**

View Table

None

**Respiratory**

Lab Data (Last 48 hours)

None

O2/Vent Data (Last 48 hours)

None

**Medications**

**Treatment Team**

Provider: Jun A Garcia, MD | Relationship: Attending | Specialty: ...

**Selected Labs**

(Last result from the past 72 hours)

Switch View

None

**Imaging**

(Last 72 hours)

**To Do**

**NoteReader CDI Queries (3)**

Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable. Based on 12 clinical indicators.

Respond | Disagree | Ask Me Later

Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable. Based on 6 clinical indicators.

Respond | Disagree | Ask Me Later

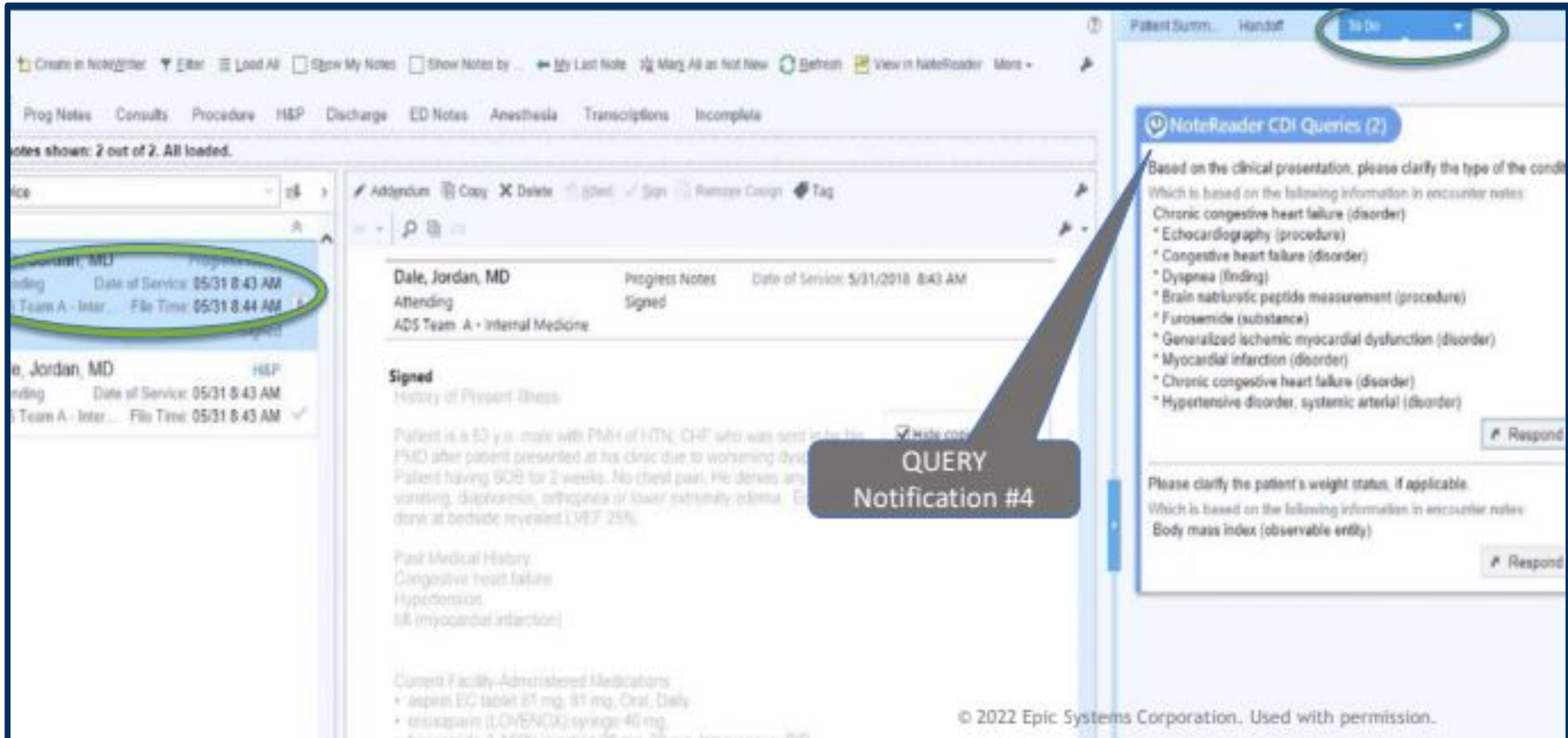
Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable. Based on 2 clinical indicators.

Respond | Disagree | Ask Me Later

Queries generated by your organization's Natural Language Processing service.

**QUERY Notification #3**

# Provider Workflow: Notes Tab



Notes shown: 2 out of 2. All loaded.

Notes list (left sidebar):

- Dale, Jordan, MD (circled in green)
  - Date of Service: 05/31 8:43 AM
  - Team A - Inter... File Time: 05/31 8:44 AM
- Dale, Jordan, MD
  - Date of Service: 05/31 8:43 AM
  - Team A - Inter... File Time: 05/31 8:43 AM

Note details (center):

**Dale, Jordan, MD** Progress Notes Date of Service: 5/31/2018 8:43 AM  
Attending Signed  
ADS Team A - Internal Medicine

**Signed**  
History of Present Illness:  
Patient is a 53 y.o. male with PMH of HTN, CHF who was sent in for his PMD after patient presented at his clinic due to worsening dyspnea. Patient having SOB for 2 weeks. No chest pain. He denies any vomiting, diaphoresis, orthopnea or lower extremity edema. ECG done at bedside revealed LVEF 25%.

Past Medical History:  
Congestive heart failure  
Hypertension  
MI (myocardial infarction)

Current Facility-Administered Medications:  
• aspirin EC tablet 81 mg, 81 mg, Oral, Daily  
• enoxaparin (LOVENOX) syringe 40 mg

**QUERY Notification #4**

**NoteReader CDI Queries (2)**

Based on the clinical presentation, please clarify the type of the condition which is based on the following information in encounter notes:

- \* Chronic congestive heart failure (disorder)
- \* Echocardiography (procedure)
- \* Congestive heart failure (disorder)
- \* Dyspnea (finding)
- \* Brain natriuretic peptide measurement (procedure)
- \* Furosemide (substance)
- \* Generalized ischemic myocardial dysfunction (disorder)
- \* Myocardial infarction (disorder)
- \* Chronic congestive heart failure (disorder)
- \* Hypertensive disorder, systemic arterial (disorder)

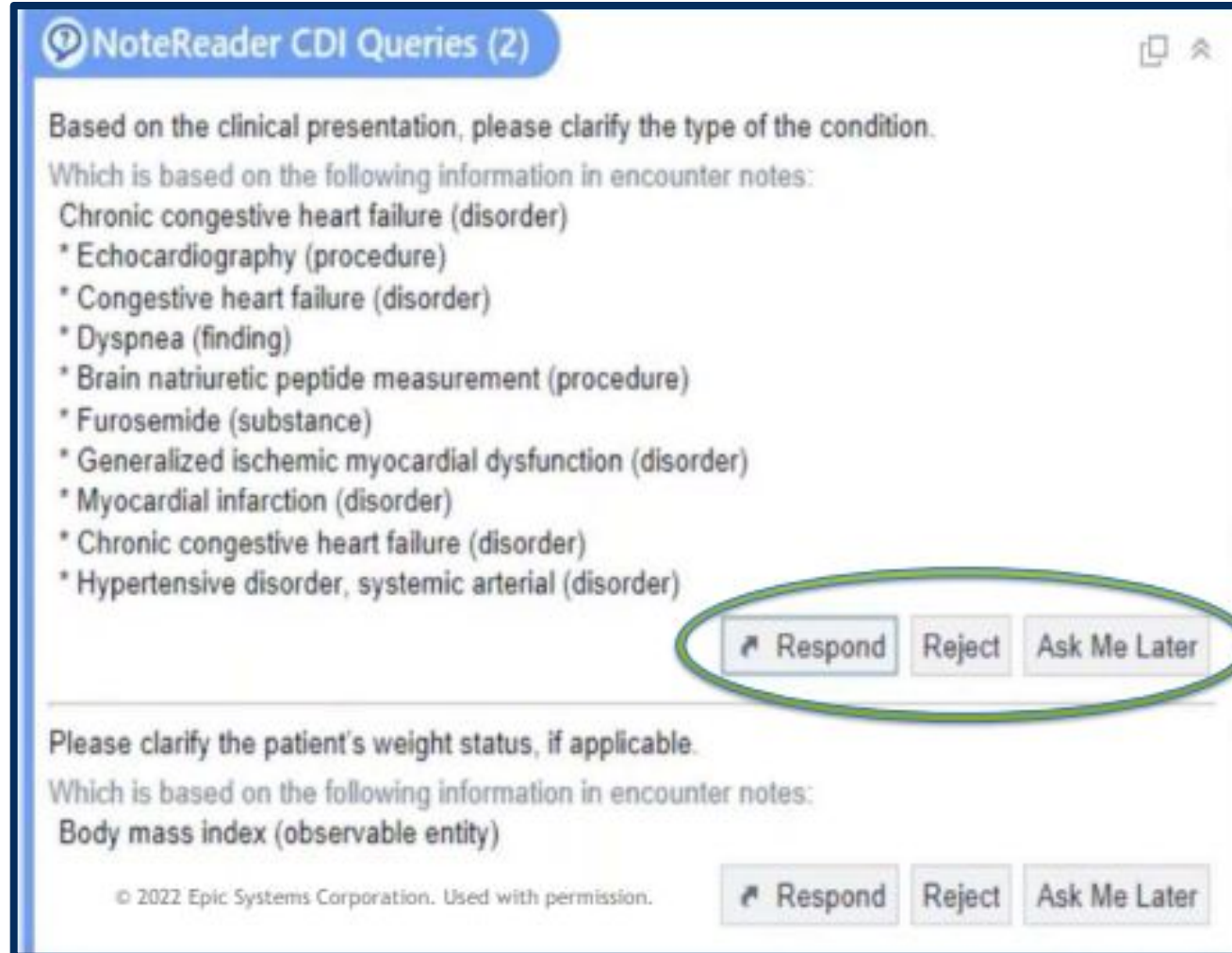
Please clarify the patient's weight status, if applicable. Which is based on the following information in encounter notes:

- Body mass index (observable entity)

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# Provider Workflow: Responding to the Query

**Zooming  
in on the  
Query**



**NoteReader CDI Queries (2)**

Based on the clinical presentation, please clarify the type of the condition.  
Which is based on the following information in encounter notes:

- Chronic congestive heart failure (disorder)
- \* Echocardiography (procedure)
- \* Congestive heart failure (disorder)
- \* Dyspnea (finding)
- \* Brain natriuretic peptide measurement (procedure)
- \* Furosemide (substance)
- \* Generalized ischemic myocardial dysfunction (disorder)
- \* Myocardial infarction (disorder)
- \* Chronic congestive heart failure (disorder)
- \* Hypertensive disorder, systemic arterial (disorder)

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Please clarify the patient's weight status, if applicable.  
Which is based on the following information in encounter notes:

- Body mass index (observable entity)

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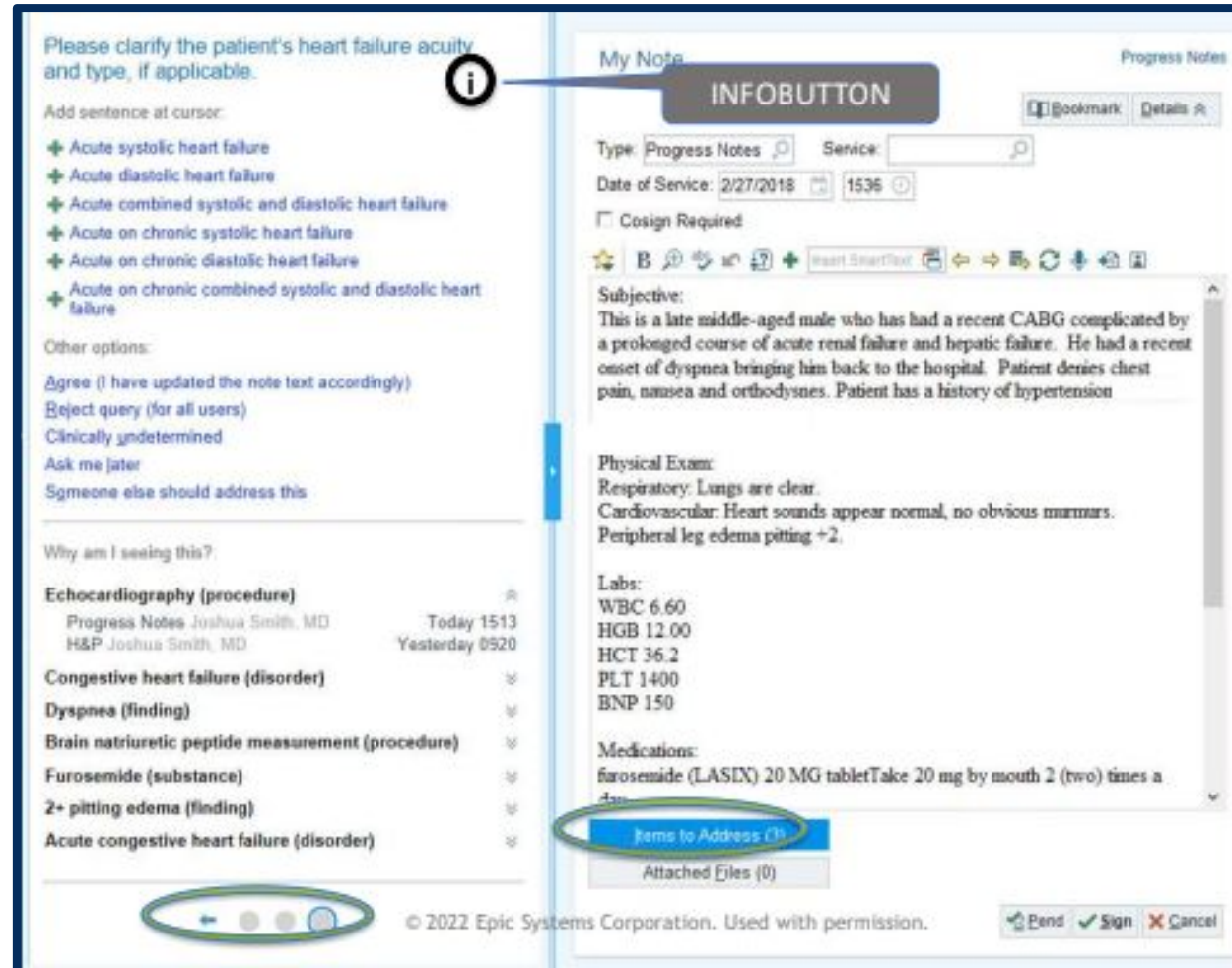
# Provider Workflow: Reviewing and Resolving the Query

1. Query →

2. Suggested text  
to insert →

3. Other Options →

4. Evidence →



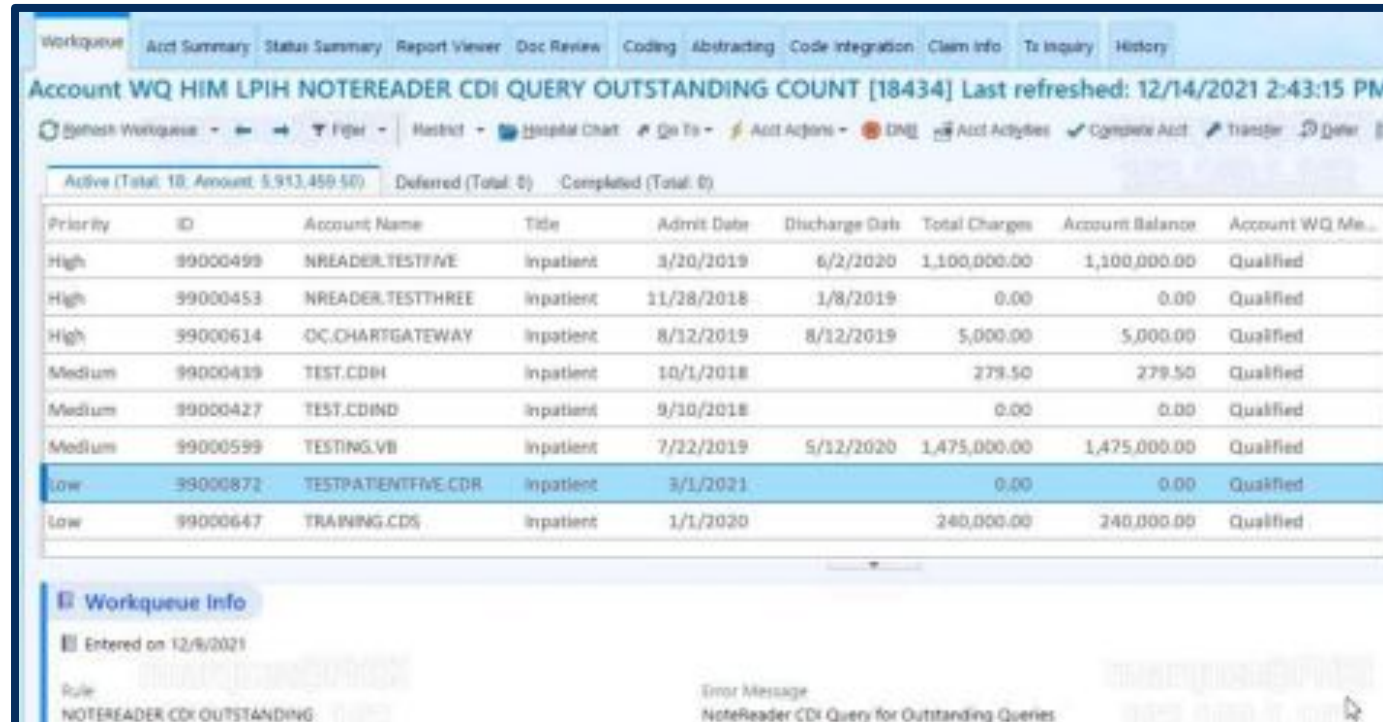
The screenshot displays the Epic My Note interface during a query resolution process. On the left, a query is presented: "Please clarify the patient's heart failure acuity and type, if applicable." Below the query, a list of suggested text options is provided, including "Acute systolic heart failure" and "Acute on chronic systolic heart failure". Further down, "Other options" include "Agree (I have updated the note text accordingly)" and "Reject query (for all users)". At the bottom left, a list of evidence items is shown, such as "Echocardiography (procedure)" and "Congestive heart failure (disorder)". On the right, the "My Note" editor is visible, showing a progress note with a subject line and a physical exam section. An "INFOBUTTON" is highlighted with a circled 'i' icon. At the bottom of the interface, a "Items to Address (3)" button is circled in green, and a navigation bar with four buttons is also circled in green. The footer includes the copyright notice "© 2022 Epic Systems Corporation. Used with permission." and buttons for "Send", "Sign", and "Cancel".

# Workflow for CDIS/HIM/Advisors: Epic Work Queues

- Easy to manage using Epic Work Queues
  - Active, Deferred, Completed
  - Configurable by customer
- Select account to review active queries



ID	Area	Service Area	Active Count	Deferred Count	Total Count	Total Amount	Active	WQ Status	WQ Status Reason
18434	HIM LPH NOTEREADER CDI QUERY OUTSTANDING COUNT	ORANGE COUNT...	15	1	16	6,454,358.54	Yes		
18434	HIM LPH NOTEREADER CDI QUERY RESPONSE RECEIVED	ORANGE COUNT...	19	3	19	5,275,480.90	Yes		



Priority	ID	Account Name	Title	Admit Date	Discharge Date	Total Charges	Account Balance	Account WQ Me...
High	99000499	NREADER.TESTFIVE	Inpatient	3/20/2019	6/2/2020	1,100,000.00	1,100,000.00	Qualified
High	99000453	NREADER.TESTTHREE	Inpatient	11/28/2018	1/8/2019	0.00	0.00	Qualified
High	99000614	OC.CHARTGATEWAY	Inpatient	8/12/2019	8/12/2019	5,000.00	5,000.00	Qualified
Medium	99000439	TEST.CDIH	Inpatient	10/1/2018		279.50	279.50	Qualified
Medium	99000427	TEST.CDIND	Inpatient	9/10/2018		0.00	0.00	Qualified
Medium	99000599	TESTING.VB	Inpatient	7/12/2019	5/12/2020	1,475,000.00	1,475,000.00	Qualified
Low	99000872	TESTPATIENTFIVE.CDR	Inpatient	3/1/2021		0.00	0.00	Qualified
Low	99000647	TRAINING.CDS	Inpatient	1/1/2020		240,000.00	240,000.00	Qualified

**Workqueue Info**

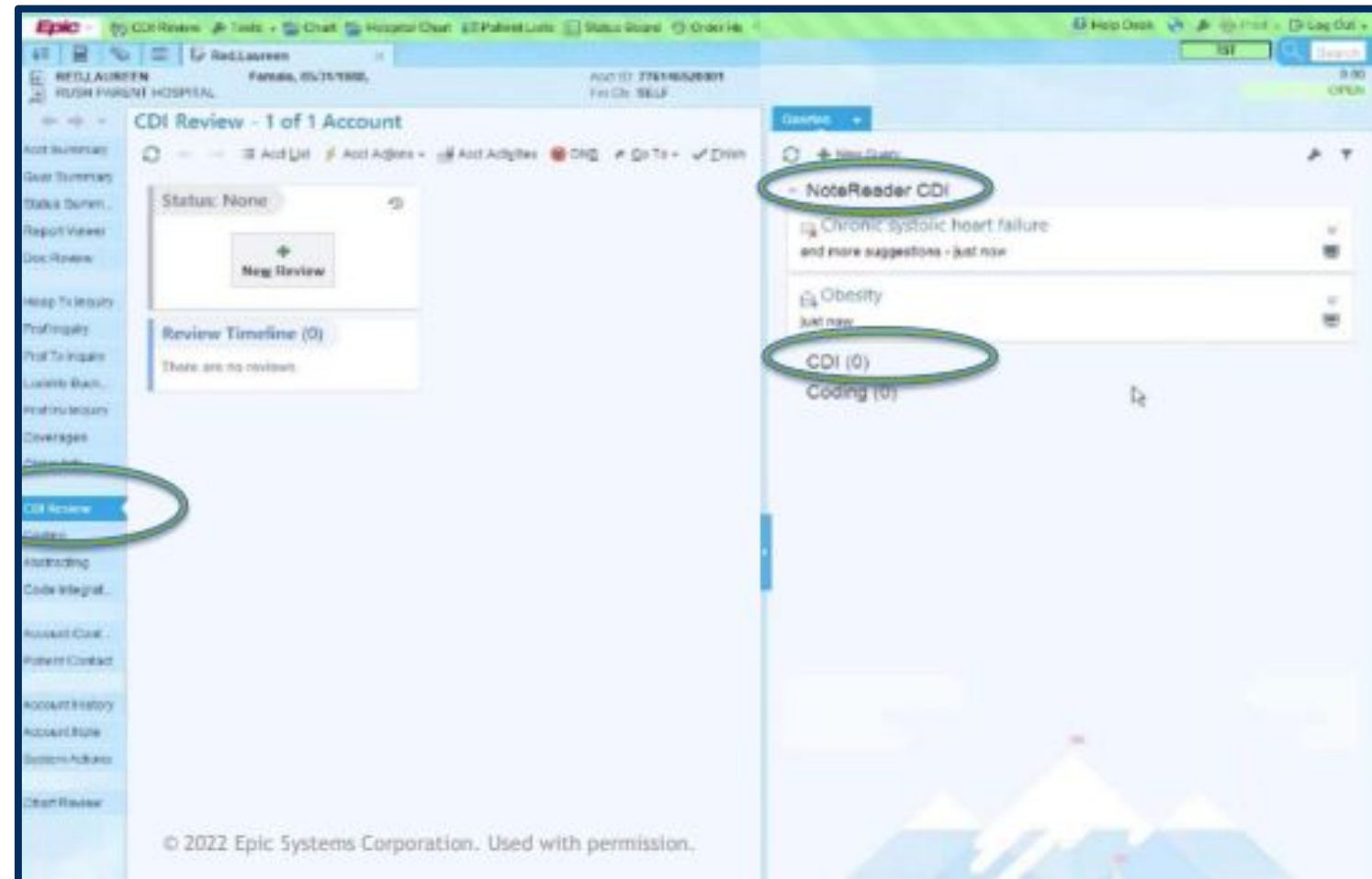
Entered on 12/8/2021

Rule: NOTEREADER.CDI OUTSTANDING

Error Message: NoteReader.CDI Query for Outstanding Queries

# Workflow for CDIS/HIM/Advisors: Reviewing Queries

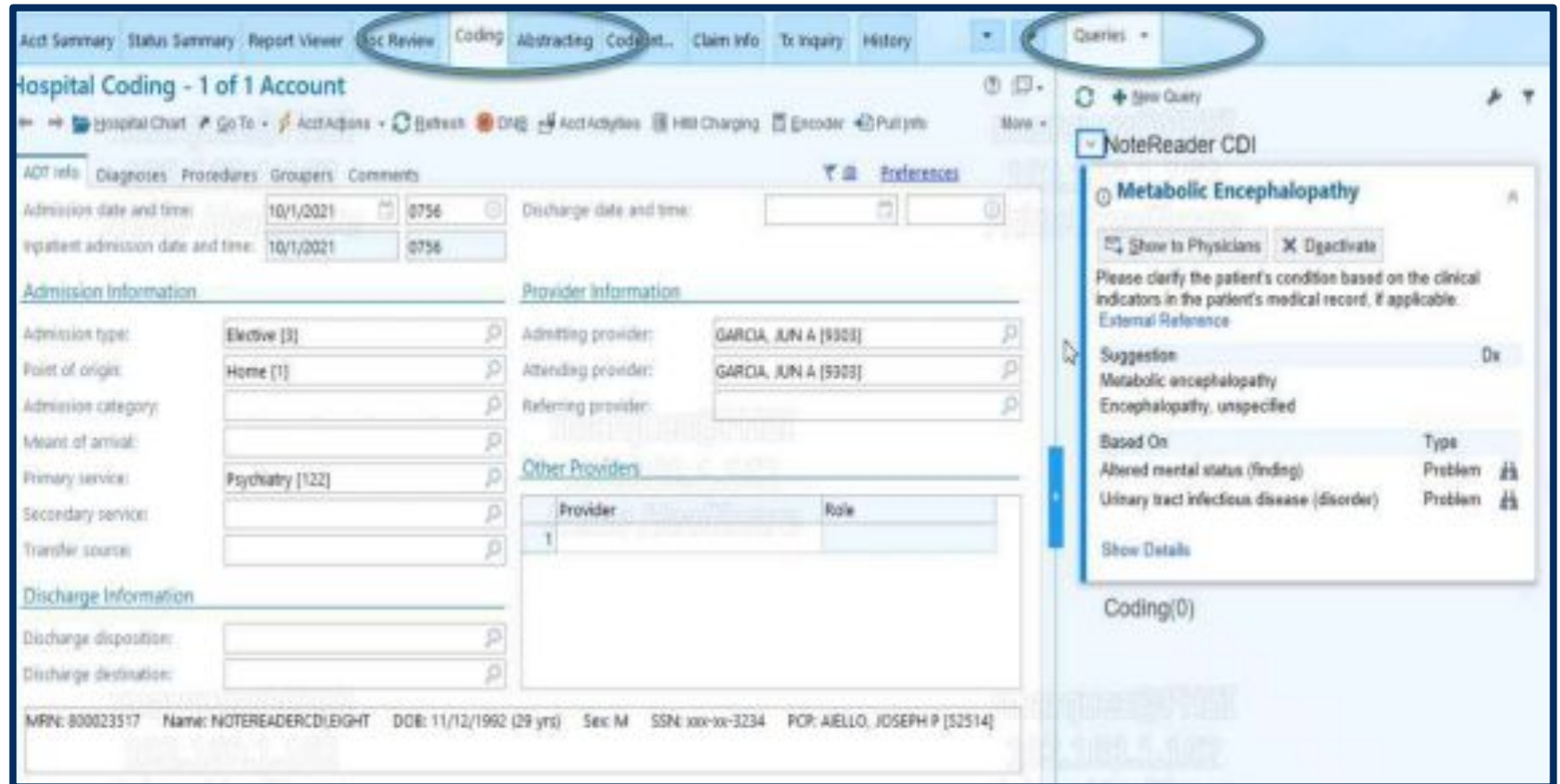
- Includes both auto-generated and manual query review
- Allows for CDI oversight and direction:
  - CDI can monitor queries and responses
  - Adjustments to queries can be made based upon performance





# Workflow for CDIS/HIM/Advisors: Reviewing Queries

- Accessible via Coding workflow as well



Act Summary Status Summary Report Viewer **Coding** Abstracting Code Set... Claim Info Tx Inquiry History

Hospital Coding - 1 of 1 Account

ADT info: Diagnoses Procedures Groupers Comments

Admission date and time: 10/1/2021 0756 Discharge date and time:   
 Inpatient admission date and time: 10/1/2021 0756

Admission Information

Admission type: Elective [3]   
 Point of origin: Home [1]   
 Admission category:   
 Means of arrival:   
 Primary service: Psychiatry [122]   
 Secondary service:   
 Transfer source:

Provider Information

Admitting provider: GARCIA, JUN A [5903]   
 Attending provider: GARCIA, JUN A [5903]   
 Referring provider:

Other Providers

Provider	Role
1	

Discharge Information

Discharge disposition:   
 Discharge destination:

MPN: 800023517 Name: NOTEREADER/DIEIGHT DOB: 11/12/1992 (29 yrs) Sex: M SSN: xxx-xx-3234 PCP: AIELLO, JOSEPH P [52514]

Queries

New Query

NoteReader CDI

Metabolic Encephalopathy

Show to Physicians X Deactivate

Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable. [External Reference](#)

Suggestion Metabolic encephalopathy Encephalopathy, unspecified

Based On

Based On	Type
Altered mental status (finding)	Problem
Urinary tract infectious disease (disorder)	Problem

Show Details

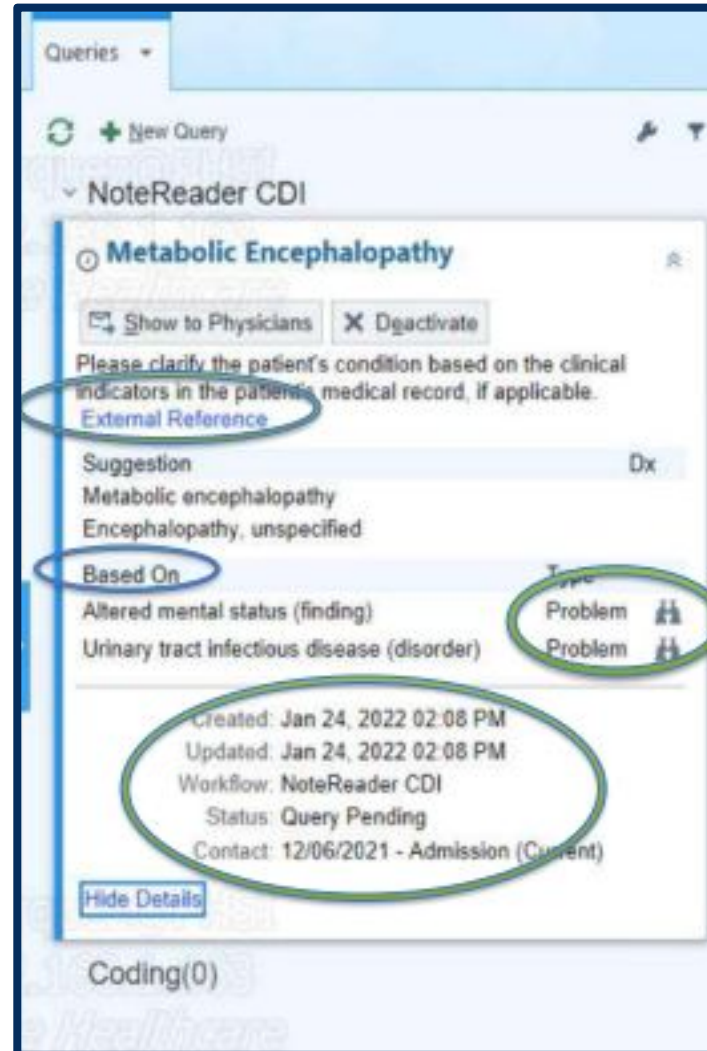
Coding(0)

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# Workflow for CDIS: Reviewing Queries

- CDI Review:

- Views all evidence
- External reference link highlights evidence in notes
- Binoculars link to actual note
- Tracks all responses



The screenshot displays the 'NoteReader CDI' interface. At the top, there's a 'Queries' dropdown and a '+ New Query' button. Below this, the 'NoteReader CDI' section is expanded, showing a query titled 'Metabolic Encephalopathy'. This query has two buttons: 'Show to Physicians' and 'Deactivate'. A text prompt asks the user to 'Please clarify the patient's condition based on the clinical indicators in the patient's medical record, if applicable.' Below this prompt is a link labeled 'External Reference'. The 'Suggestion' section lists 'Metabolic encephalopathy' and 'Encephalopathy, unspecified'. The 'Based On' section lists 'Altered mental status (finding)' and 'Urinary tract infectious disease (disorder)'. To the right of these findings is a 'Type' column with 'Problem' and a binoculars icon for each. At the bottom, a green oval highlights the metadata: 'Created: Jan 24, 2022 02:08 PM', 'Updated: Jan 24, 2022 02:08 PM', 'Workflow: NoteReader CDI', 'Status: Query Pending', and 'Contact: 12/06/2021 - Admission (Current)'. A 'Hide Details' button is located below the metadata. At the very bottom, it says 'Coding(0)'.

# External Reference Link

- All evidence is easily identified within Epic during the CDI Review, if necessary

Query: NRCDI Hypokalemia Encounter ID: 69340762 Patient ID: 3969140 Analysis: 17-Jul-19 08:25			
Documentary Evidence			Document Text
(Internal Medicine) H&P @ 02-Jul-19 03:29 "potassium chloride" [2 Potassium results <=3.4 + 1 intervention] i. (Internal Medicine) MD Prog Notes @ 03-Jul-19 07:12 "potassium chloride" [2 Potassium results <=3.4 + 1 intervention] (Internal Medicine) MD Prog Notes @ 11-Jul-19 08:28 "potassium chloride" [2 Potassium results <=3.4 + 1 intervention]			Scheduled Meds: eripipenem 1 g Q24HR folic acid 1 mg DAILY insulin glargine 5 Units QHS insulin lispro 2 Units TID-WITH MEALS insulin lispro sensitivity factor QID-WITH MEALS and BEDTIME multivitamin with iron-minerals 15 mL DAILY nicotine 1 Patch DAILY potassium chloride 40 mEq BID QUEtiapine 25 mg 1900 sodium chloride 3 mL Q6HR thiamine mononitrate 100 mg DAILY PRN Meds: acetaminophen 650 mg Q4HR-PRN dextrose 15 g PRN dextrose 50 % in water (D50W) 25 mL PRN dextrose 50 % in water (D50W) 50 mL PRN lorazepam-elbutalol 3 mL Q4HR-PRN Current Continuous IV FLUIDS or Drips: Objective: Intake/Output Summary (Last 24 hours) at 7/11/2019 0826 Last data filed at 7/10/2019 1800 Gross per 24 hour Intake --- Output 3200 ml Net -3200 ml Stools/No data found. FSBS: No data found. 11.24 : 81 mg/dl - glucose (poct) Today's Weight: 66.5 kg Admission Weight: 48.7 kg Body mass index is 22.96 kg/m².
Discrete Evidence			
Observation Type	Value	Time	Combo
Potassium SerPi-sCnc	3.0 +	02-Jul-19 02:30:50	
Potassium SerPi-sCnc	2.9	02-Jul-19 01:45	2 Potassium results <=3.4 + 1 intervention
Potassium SerPi-sCnc	3.3 +	02-Jul-19 18:10:54	
Potassium SerPi-sCnc	3.4	02-Jul-19 14:05	2 Potassium results <=3.4 + 1 intervention
Potassium SerPi-sCnc	3.4 +	02-Jul-19 21:46:02	
Potassium SerPi-sCnc	3.3	02-Jul-19 18:10	2 Potassium results <=3.4 + 1 intervention



Query logic is configurable:

**1. Supports changes within minutes**

- ☐ Findings, medications, vitals, labs & text strings
- ☐ Specifies note section (e.g. Imaging)
- ☐ Vitals and labs are gender and age range specific

**2. Query prompt, subject title**

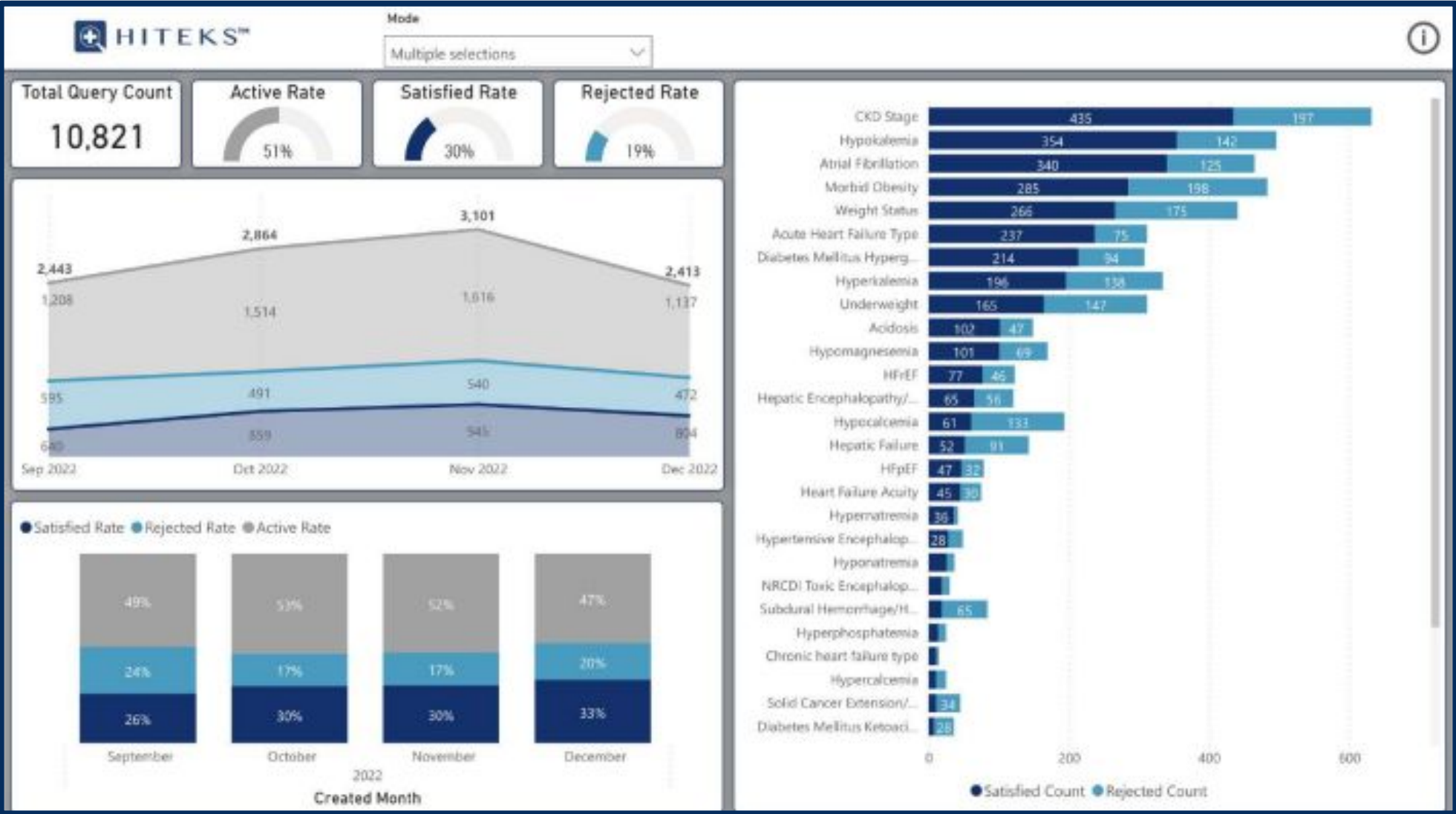
**3. Includes a library of query templates**

**4. Enables changes to HITEKS' foundation build query templates**

**5. Allows new, client-specific & compliant queries**



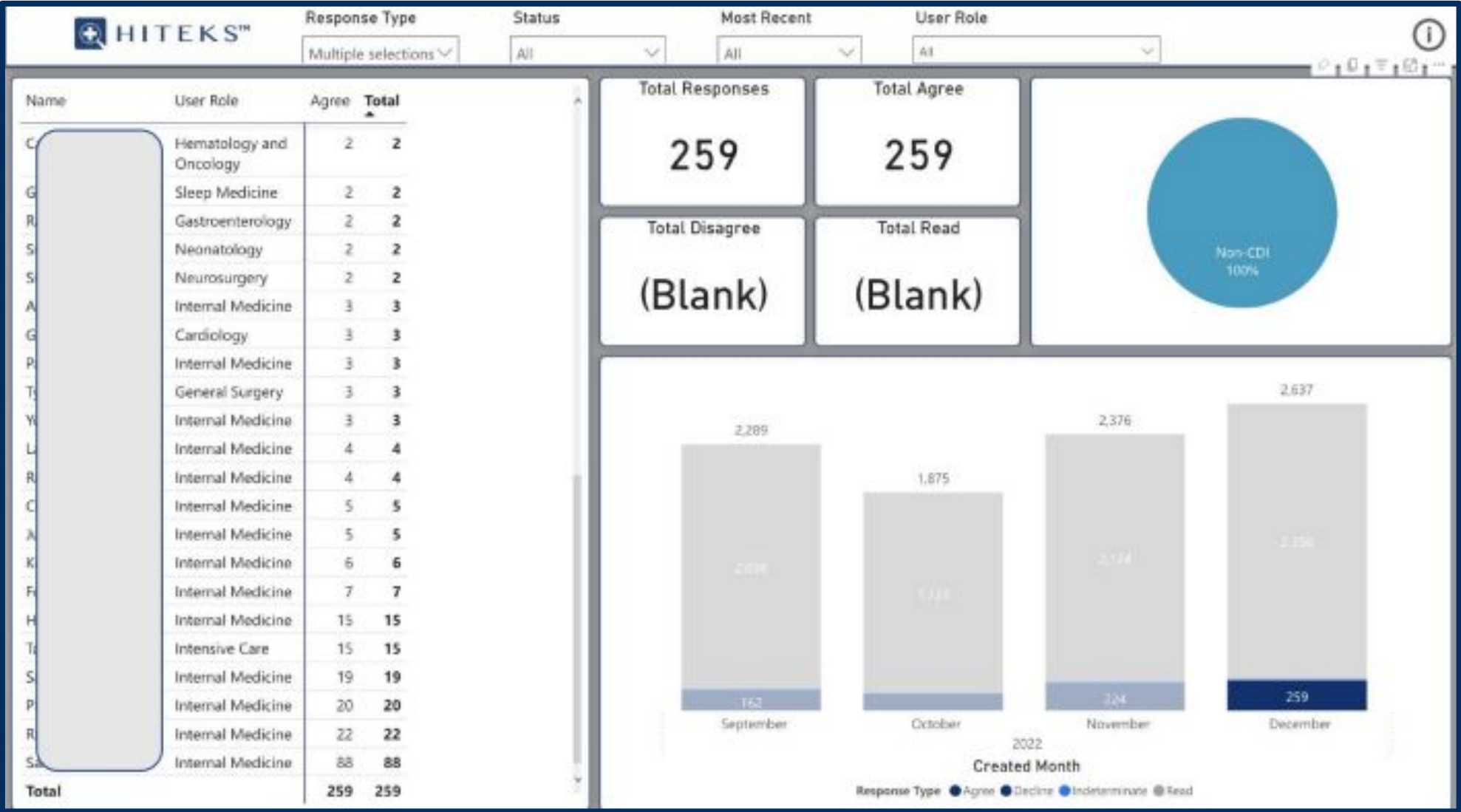
# PowerBI Reporting Dashboard: Query Summary (using test data for example only)



# PowerBI Reporting Dashboard: Response Summary (using test data for example only)

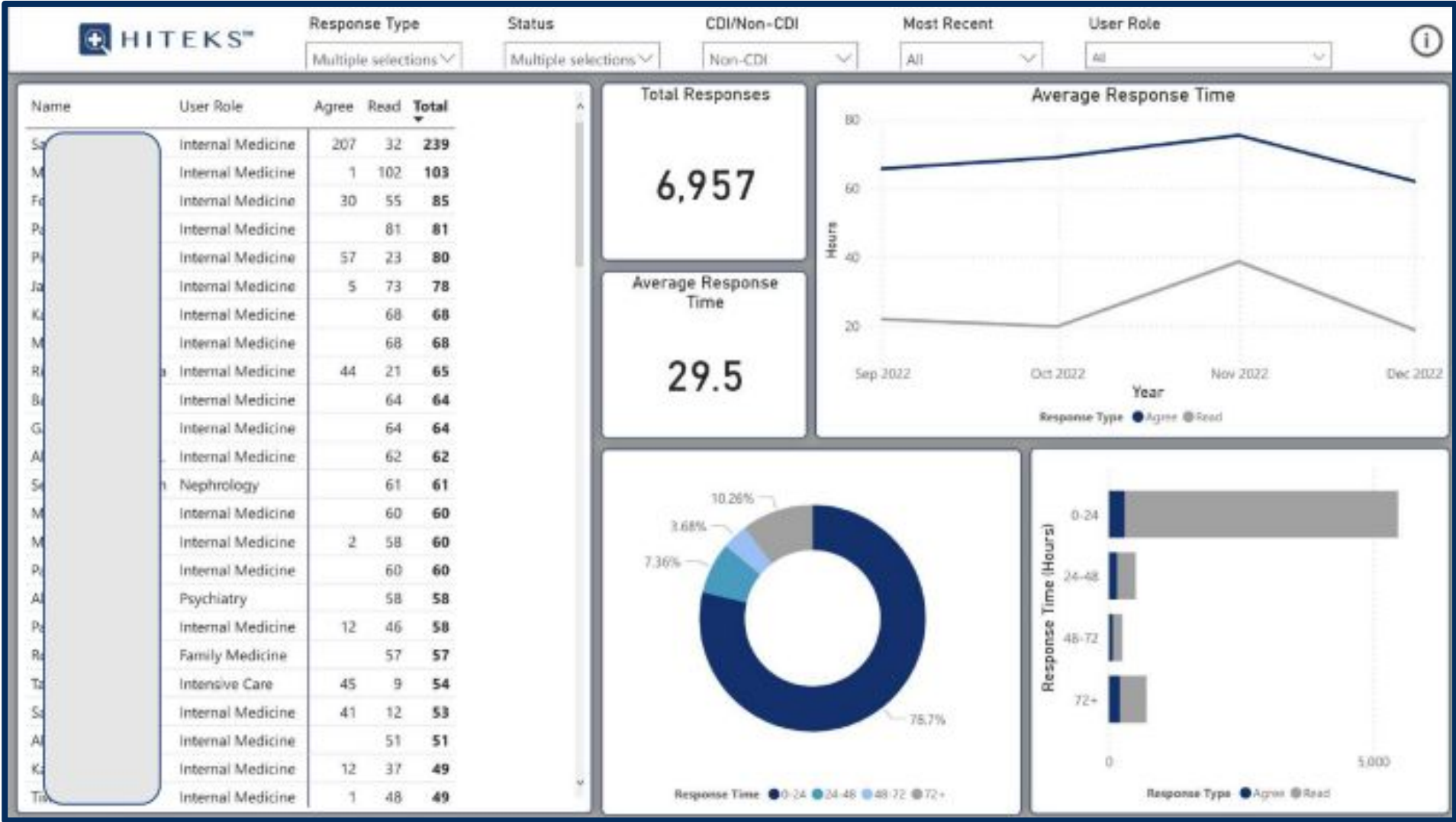


# PowerBI Reporting Dashboard: User Responses (using test data for example only)

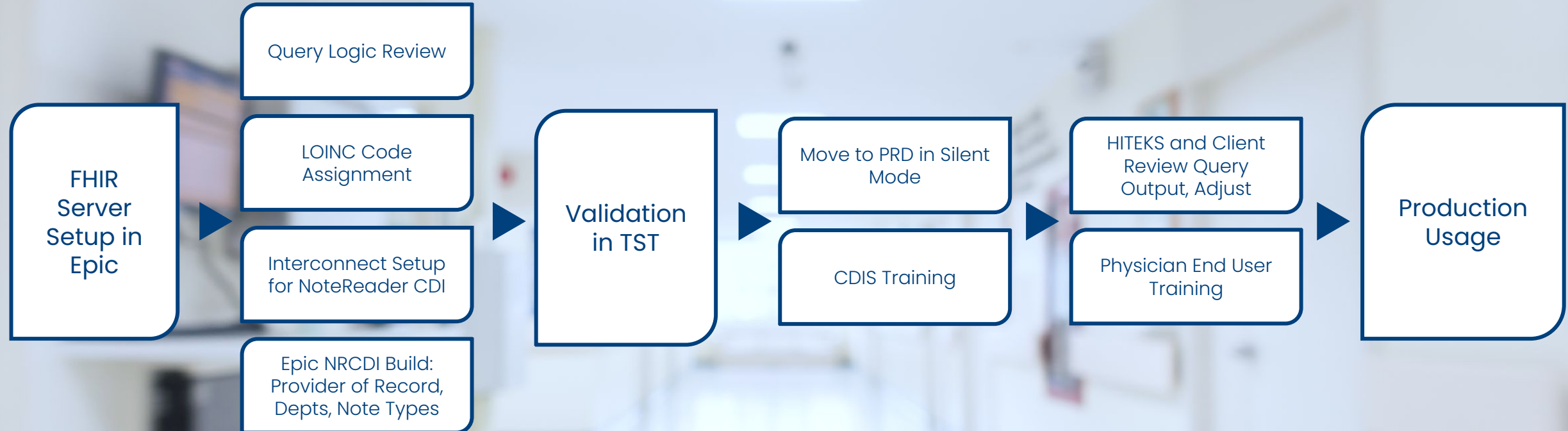




# PowerBI Reporting Dashboard: Response Times (using test data for example only)



# Epic Interface & Implementation Steps



Week 1

Week 6-8

# The HITEKS Difference



1. 100% Proactive vs Reactive to boost CMI & Revenues.
2. Over 120 query customizable query templates.
3. Real-time, fully formed autonomous and compliant.
4. Embedded in Epic workflow.
5. Proven reduction in provider burden and response.
6. No additional software or hardware.

## Thank You

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