The DCLS Resident Experience

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Objectives

1. Define the Diagnostic Consultation Model (DCM) regarding:
   - Utilization Review
   - Patient Care Intervention
   - Consumer Information
   - Diagnostic Management Teams
2. List the intended roles of the DCLS
3. Summarize the potential benefits and cost savings of the DCLS in a hospital setting

Disclosures

- Augusta University Medical Center aka Wellstar MCG
- Rutgers University, School of Health Professions
- NAACLS Doctoral Review Committee Member

What is the DCLS?

Advanced practice doctoral degree for certified Medical Laboratory Scientists

- Experts in clinical laboratory testing
- Collaborators
- Consultants
- Community leaders
- Educators
- Scholars
- Researchers
- Authors
- Laboratory Liaison
- "Face of the Lab"

Residency

- In person clinical experience – Diagnostic Consultation Model
  - 16 to 42 weeks
- Patient rounding with various services
- Work with interdisciplinary teams as laboratory advocate
- Guide utilization and interpretation of lab
- Identify work processes and quality gaps*
- Capstone Project

Capstone Projects

Characterization of Requests for Clinical Laboratory Consultation

Evaluation of Clinical Scoring Systems in the Utilization of ADAMTS13 Testing

Evaluation of a Laboratory Activated Rapid Response Team for Treatment of Hypercritical Values

Assessing Genomic Sequencing Outcomes on NICU and PICU Inpatients*

Reducing Inappropriate CMV and Hepatitis Genotype Testing with Diagnostic Stewardship

Order and Utilization of Peripheral Blood Flow Cytometry

Residency

- The Diagnostics Consultation Model© operationalizes the practice of the DCLS as active members of interprofessional health care teams in a variety of settings:
  - Patient Care Intervention – PCI
  - Utilization Review Intervention – URI
  - Diagnostic Management Intervention – DMI
  - Consumer Information Response - CIR

Patient Care Intervention

PCI

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Residency - PCI

- Patient Care Intervention
  - Participate in daily rounding of specialized medical services

MICU/PICU/CVICU	Internal Medicine	Family Medicine	MFM	Cardiology
ID	Heme/Onc	Rheumatology	ED	Neurology

Residency - PCI

- Patient Care Intervention
  - Chart review
  - Diagnostic data
    - Lab & Radiology
  - Medications
    - Pharmacy
  - Care plan
    - Goals
    - Consults
  - Disposition plan
    - Social services, case manager, pastoral care
    - Unit Transfer, Rehab, Hospice, Nursing home, Assisted Living, Home Health etc

Residency – PCI SOAP Note

Subjective

- Chief complaint & history

Objective

- Vital signs, labs, imaging, EKG, etc

Assessment

- Clinical picture and reasoning

Plan

- Treatments, Intervention, Follow-up

Subjective

The patient stated, "*I've been feeling very tired lately.*" The patient reports that "*this fatigue is overwhelming*" and that onset began approximately 3 months ago, making her "*demanding job responsibilities*" challenging to fulfill. The patient confirmed that she is not currently taking any medication or supplements. She further noted that, "*I struggle to fall asleep and always wake up tired.*"

Objective

BP 135/85, HR 78, fatigued appearance and affect. (Lab/Imaging/EKG)

Assessment

- **Diagnosis:** Possible dehydration, possible overexertion.
- **Differential Diagnosis:** Possible deficiencies (such as D3 or B12, known to cause fatigue if severe).

Plan

- **For Immediate Action:** Recommend increased fluid intake and electrolytes, as well as improved sleep routine, and prescribe a mild sleep aid. Follow-up appointment scheduled in 7 days.
- **Tests:** Bloods were taken to test for the following deficiencies:
  - D3
  - Iron
  - Magnesium
  - B12
- **Follow-Up:** Test results due in 5 days, upon which a possible reevaluation of the plan may be needed.

PCI Example

MICU

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Subjective

53 YO AA M

Admission

- 6/21 - during dialysis pt became unresponsive and tachycardic with a L sided gaze
- Hx - ESRD, schizophrenia, HTN, T2DM
- Forensic pt from ASMP

HPI

- ECG concern for STEMI and but no change in status post nitroglycerin.
- No hx of seizures. No hx CAD
- ASMP staff reports that this morning he woke up feeling well.

Consultation

- Neurology – Code Stroke activated, concern of nonconvulsive seizure than stroke
- Admitted to MICU – management of inadequate airway protection and shock

Transfers

- ED – MICU – IM – General – HM – IM

Objective

- 6/21/2024
  - WBC 6.5 (N), H&H 9.5/28.4, MDW 24.0, PTT 96.9, TSH 5.802, FT4 2.11
    - Hepatitis Panel WNL
  - POC Na 135, K 3.0, Cl 96; CO2 30, BUN 35, Crea 5.4
  - POC LA 3.02; VBG 7.55/35.2/34/31
    - LA repeats ≤2.0
  - EKG sinus tachycardia, no ST elevations
  - CXR b/l airspace opacities concerning for fluid overload and pulm edema
    - cannot exclude superimposed infectious/inflammatory findings at L lung base
  - Neuro- L gaze preference and NIHSS 28
    - CT Head showed no acute intracranial process
    - CTA head and neck revealed no LVO

Objective

- 6/22/2024
  - WBC 12.7 (↑), H&H 8.6/26.6 (↓)
  - Na/K/CO2 WNL, Cl 96; BUN 48 (↑), Crea 6.49 (↑), Ca 10.8, Phos 8.2 (C!), iCa 5.7
  - 25 Hydroxy Vitamin D 27.67; 1,25 Dihydroxy Vitamin D ordered
  - PTH 15.5; Vit B 12 > 1500
  - EEG was negative for seizures but indicative of a severe diffuse encephalopathy
  - 1st BC (aerobic) bottle positive for S. epidermidis on 6/26/24
  - 2nd BC bottle (anaerobic) positive for S. epidermidis on 6/27/24
  - BAL positive for MSSA
  - BAL AFB and Fungus cultures pending

First Day on Service - 6/26/24

Labs

- WBC - elevated
- Ca/iCa – elevated/borderline
- Phos - elevated
- 1,25 Dihydroxy Vitamin D - pending
- PTHrp – pending
- IFE – pending
- IgG, IgA, IgM levels normal
- Kappa/Lambda light chains – markedly elevated with normal ratio
- CXR: Increase airspace markings in left base since previous study. Marked central congestion compatible with volume overload.

Assessment

- Metabolic Bone Disease
- Encephalopathy
- Undifferentiated Shock
- ESRD on dialysis

Clinical Questions

Etiology of metabolic encephalopathy? Bone disease?

- MRI Brain showing bifrontal punctate acute infarction R > L w/o hemorrhage
  - Neurology believes that infarctions likely 2/2 motion degradation
- Bone disease unclear – labs pending

Is the shock or AHRF related to infection?

- Leukocytosis with neutrophilia and sporadic lactic acidosis & elevated MDW
- MSSA PNA resolved by 6/28 – BC likely contaminant

Is the dialysis a contributing or aggravating factor?

- Dialysis Disequilibrium Syndrome being investigated – no cerebral edema

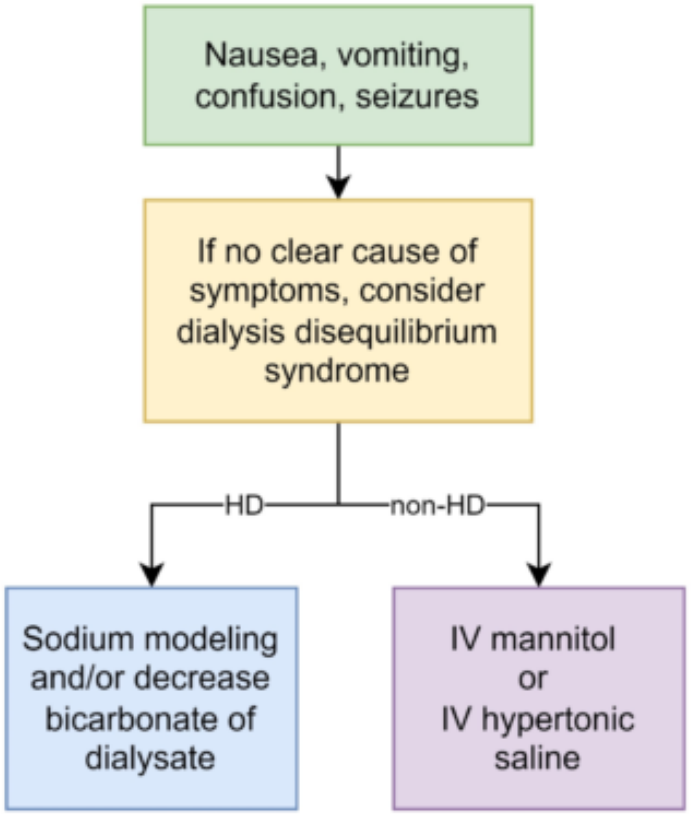
Dialysis Disequilibrium Syndrome

Can vary from nausea and vomiting to confusion and seizures

Tends to occur at the beginning of dialysis

Risk factors are extremely high BUN, first-time dialysis, and long gaps between dialysis sessions

Potential mechanisms are reverse osmotic shift due to urea and other osmoles



IM FAST FACTS

Bhandari, Binita, and Saketram Komanduri. "Dialysis disequilibrium syndrome." (2020).

@SatyaPatelMD

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6/28/24

Labs

- 1,25 Dihydroxy Vitamin D - >200 (19.9-79.3)
- PTHrp – pending
- IFE - broad IgG-kappa monoclonal protein is noted far cathodal in the gamma region among predominantly polyclonal immunoglobulins. Significance of this low-level monoclonal protein among multiple medical problems is unclear.

Assessment (MD Differential)

- Metabolic Bone Disease
- Encephalopathy
- Undifferentiated Shock
- ESRD on dialysis

Assessment - PCI

Metabolic Disorder(s) Etiology Unclear

- Markedly elevated 1,25 Dihydroxy Vitamin D needs correlation
- Hypercalcemia and normal 25 Hydroxy Vitamin D & PTH

Immunologic Response Unclear

- Markedly elevated free light chains with low level of monoclonality
- No evidence of lymphoma or malignancy
- Leukocytosis and PNA resolved

Differential Diagnosis

- **Sarcoidosis**
- **TB**
- **Lymphoma**

Plan- PCI

Recommend ACE level to rule in/rule out sarcoidosis

- CXR is not clear
- PTHrp – still pending
- Etiology of metabolic “bone disorder” still not addressed

Suggested attending consider ACE testing considering, hypercalcemia, elevated 1,25 Dihydroxy Vitamin D and markedly elevated free light chains

Clinical Investigation Cont'd

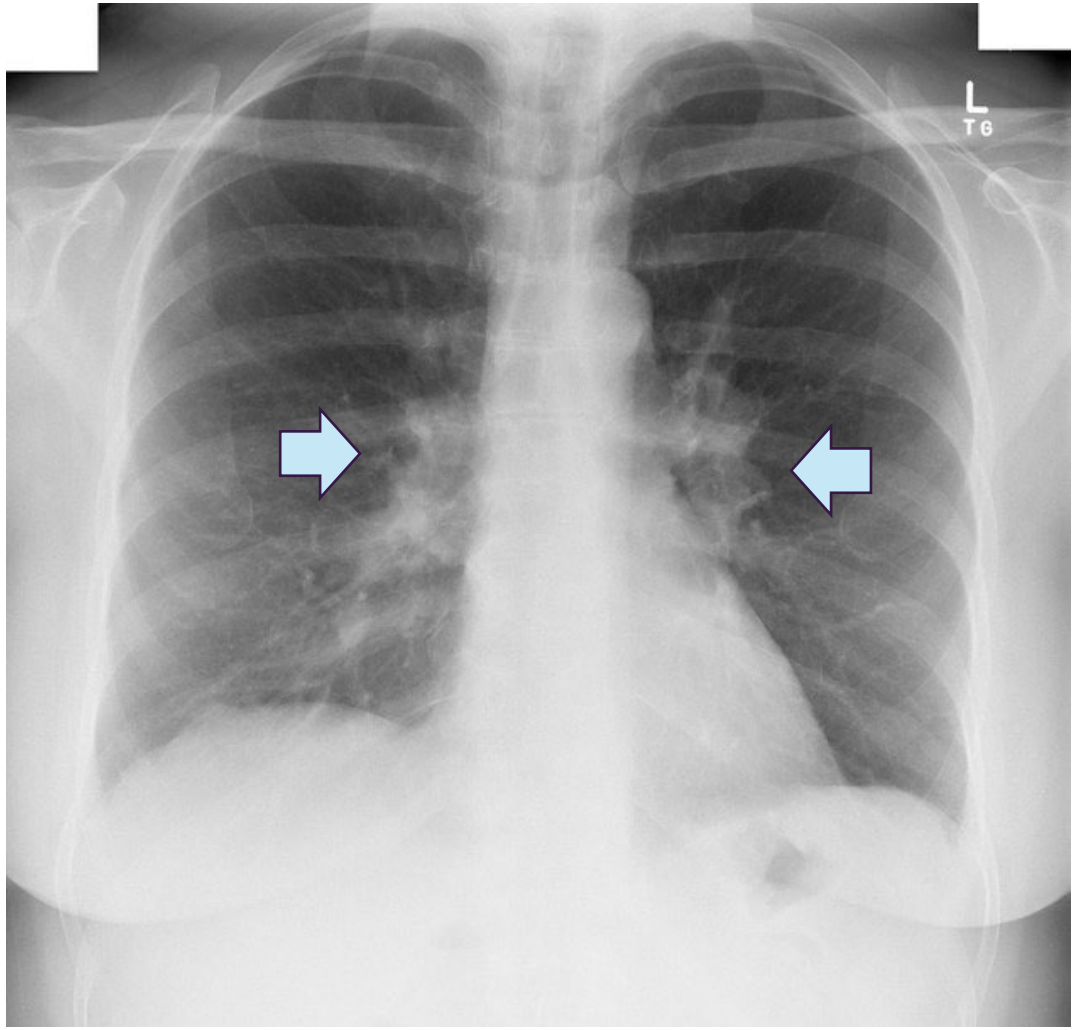
7/1 - CT Chest **shows enlarged mediastinal and hilar lymph nodes concerning for lymphoproliferative process**

7/2 -CT of Abdomen and Pelvis also find lymphadenopathy suggestive of lymphoproliferative process.

PTHrp – 0.9 (>4.2)

ACE – 163 & 201 (16-85)

Bilateral hilar lymphadenopathy



Clinical Investigation Cont'd

7/4 - Lab work up and radiographic findings concerning for Sarcoid vs lymphoproliferative process.

Bronch w LN Bx by IP is pending

Ongoing Developments:

Mild shortness of breath

Cough w/clear mucous

Sarcoid Dx Score (SDS) of 10

+3 bilat Mediastinal/hilar Lymphadenopathy

+2 non-thoracic Lymphadenopathy

+3 Hypercalcemia w normal PTH, increased Vit 1/25, low/norm 25-OH Vit D

+2 Splenomegaly

Clinical Investigation Cont'd

7/10/2024

- Bronchoscopy with biopsy to evaluate mediastinal and hilar lymphadenopathy
  - Cytology and Flow Cytometry

7/13/2024

- Rheumatology Consult
  - fatigued with generalized weakness
  - anorexia due to dysphagia.
  - denies overt fevers.
  - pruritic white bumps on his bilateral forearms which is worsening. He also states that the skin on his head feels tight without obvious swelling.
  - denies any joint swelling or pain, muscle pain, bone pain, palpitations, oral ulcers, alopecia, digital ulcers, shortness of breath, headache, focal weakness, raynauds. Denies ever having a red painful eye

Diagnosis Confirmed

Rheumatology

- This is new sarcoidosis evidenced by biopsy showing **non-necrotizing granulomas with hypercalcemia and possible calcinosis of his forearms, elevated 1, 25–vitamin D, elevated ACE, bilateral hilar lymphadenopathy and abdominal lymphadenopathy**.

Pathology

- Similar, prominent non-necrotizing granulomas essentially replace the lymph node tissue in specimens A and B and are quite prominent in the bronchial wall in specimen C. Fungal and Acid fast stains are negative in all three specimens, although these are insensitive methods for detection of infection. **Sarcoidosis is a diagnosis of exclusion and infection must be further excluded on clinical grounds, but the features in these three specimens are compatible with sarcoidosis.**

SARCOIDOSIS

YOU ARE NOT ALONE

WHAT IS IT?

Sarcoidosis is an inflammatory disease wherein the immune system goes into overdrive.

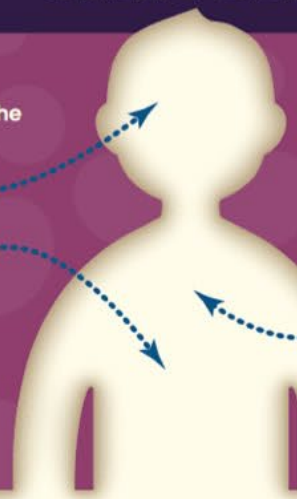
Sarcoidosis can affect almost any organ in the body.

Sarcoidosis causes cells to group together into clumps called "granulomas."

It is not known exactly what causes sarcoidosis.

It is estimated there are more than 200,000 people living with sarcoidosis in the US.[1]

SYMPTOMS[2]



25% of cases affect the eyes.

35-50% of cases have respiratory symptoms, such as shortness of breath, dry cough, and chest pain.

90% of cases affect the lungs and lymph nodes.

25% of cases affect the skin.

AGE

Sarcoidosis can affect people of any age, but 70% of patients are ages 20 to 40.

ETHNICITY

Anyone can develop sarcoidosis.

For reasons not yet understood by medical science, sarcoidosis is more common among African Americans and people of Northern European - particularly Scandinavian - descent.

TREATMENT

In more than half of cases, sarcoidosis only lasts for 12 to 36 months and resolves without treatment.[3]

GREAT NEWS: With good medical care, most cases of sarcoidosis are not severe and do not cause lasting damage to the body.

When treatment is needed, however, it is important to understand all of your options.

START THE CONVERSATION WITH YOUR DOCTOR BY USING

THE SARCOID 5

1. Which of my organs are affected by sarcoidosis?
2. Can I do anything to prevent symptoms?
3. What are all of the treatment options available to treat sarcoidosis?
4. Which treatment is best for me and why?
5. Where can I find support?

PCI Stats

Summer-Fall 2025

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Residency – PCI

- 144 patients seen so far with 176 encounters

Service	Count of Service
General Medicine	99
MICU	29
PICU	24
Cardiology	19
Maternal Fetal Medicine	5
Grand Total	**176**

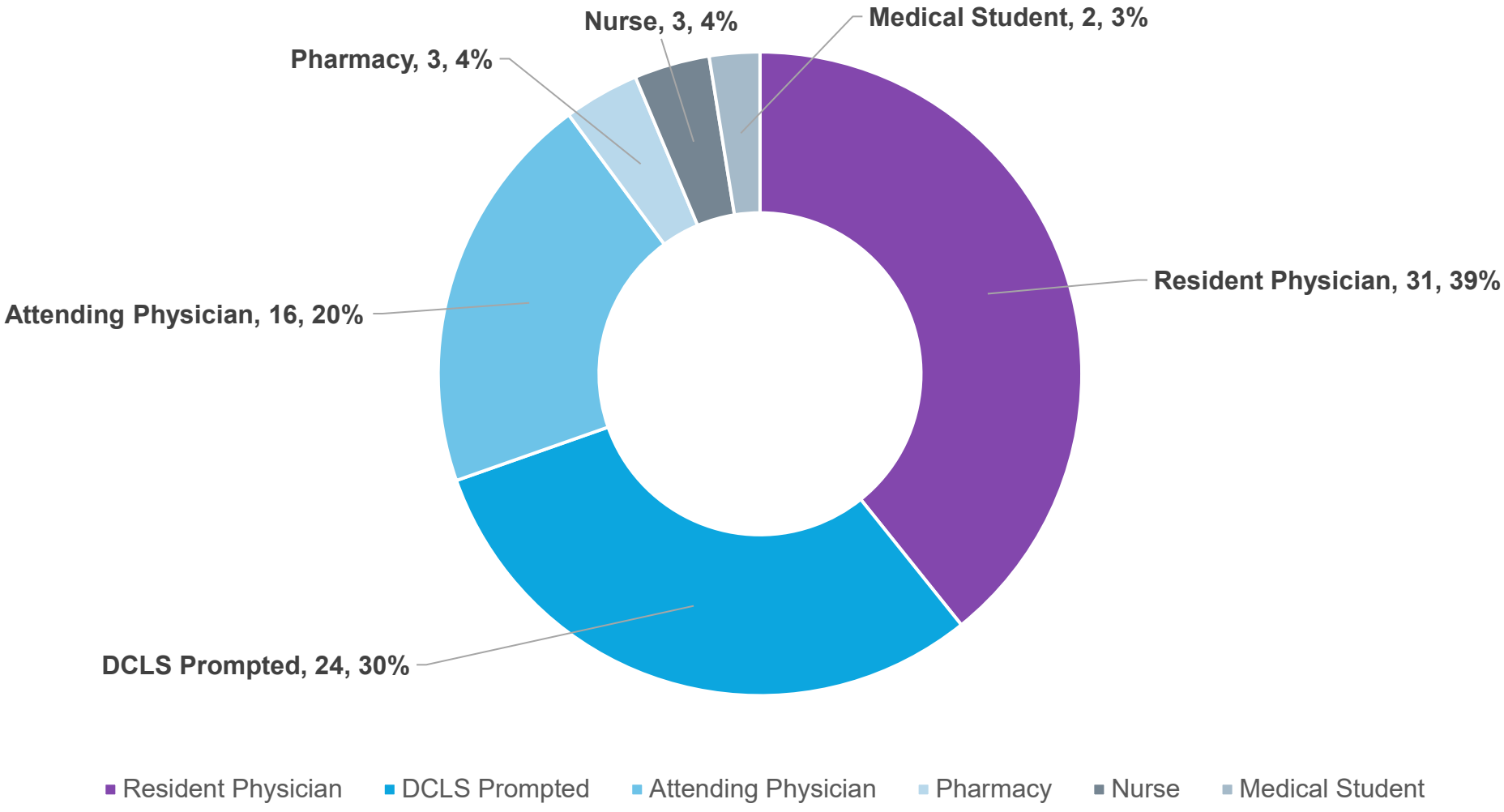
Residency – PCI

Primary Diagnosis	Frequency
Shortness of Breath	10
Ground Level Fall	10
Post Code/Cardiac Arrest	9
Weakness	8
Abdominal Pain	7
Acute Hypoxic Respiratory Failure	6
Chest Pain	6
Multiorgan failure	5
Altered Mental Status	5
Code Stroke	5
Syncope	4
Unresponsive	4
Pericardial Effusion	3
Gallbladder obstruction	3
Septic shock	3
Dysphagia	3
GI Bleed	3
Grand Total	**174**

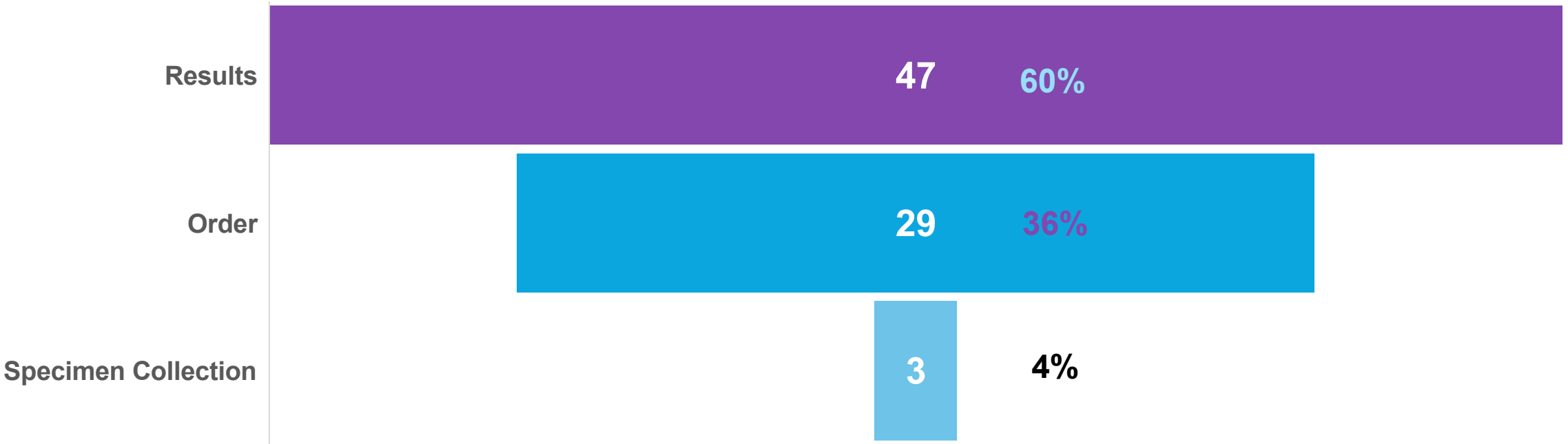
Residency – PCI

Was there a Lab-Related Issue?	Frequency	Percent
0 - No	97	**55%**
1 - Yes	79	**45%**
Grand Total	**176**	**100%**

Who Asked the Lab-Related Question?



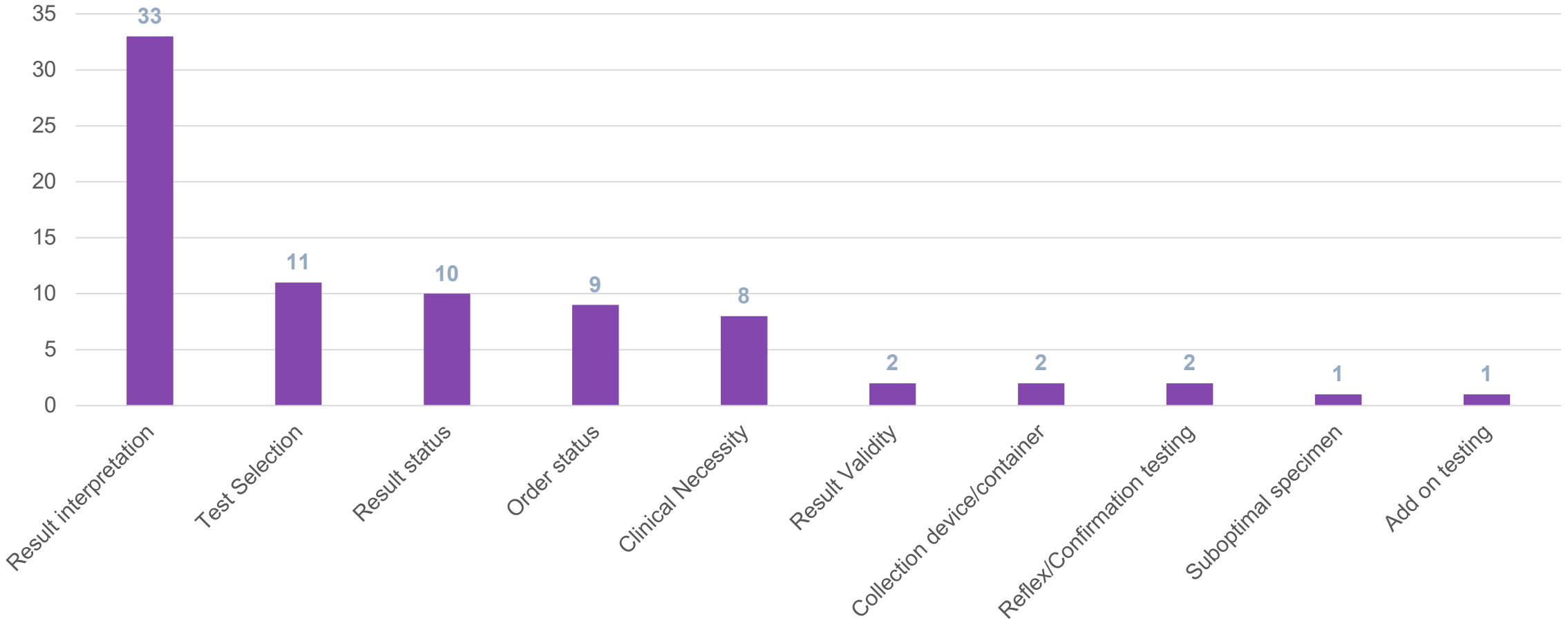
Type of Issues



Quality Gap

Type of Issue	Quality Gap Related to Lab Issue	Count of Quality Gap Related to Lab Issue
Specimen Collection	Collection device/container	2
	Suboptimal specimen	1
Specimen Collection Total		**3**
Results	Reflex/Confirmation testing	2
	Result interpretation	33
	Result status	10
	Result Validity	2
Results Total		**47**
Order	Add on testing	1
	Clinical Necessity	8
	Order status	9
	Test Selection	11
Order Total		**29**
Grand Total		**79**

Quality Gap



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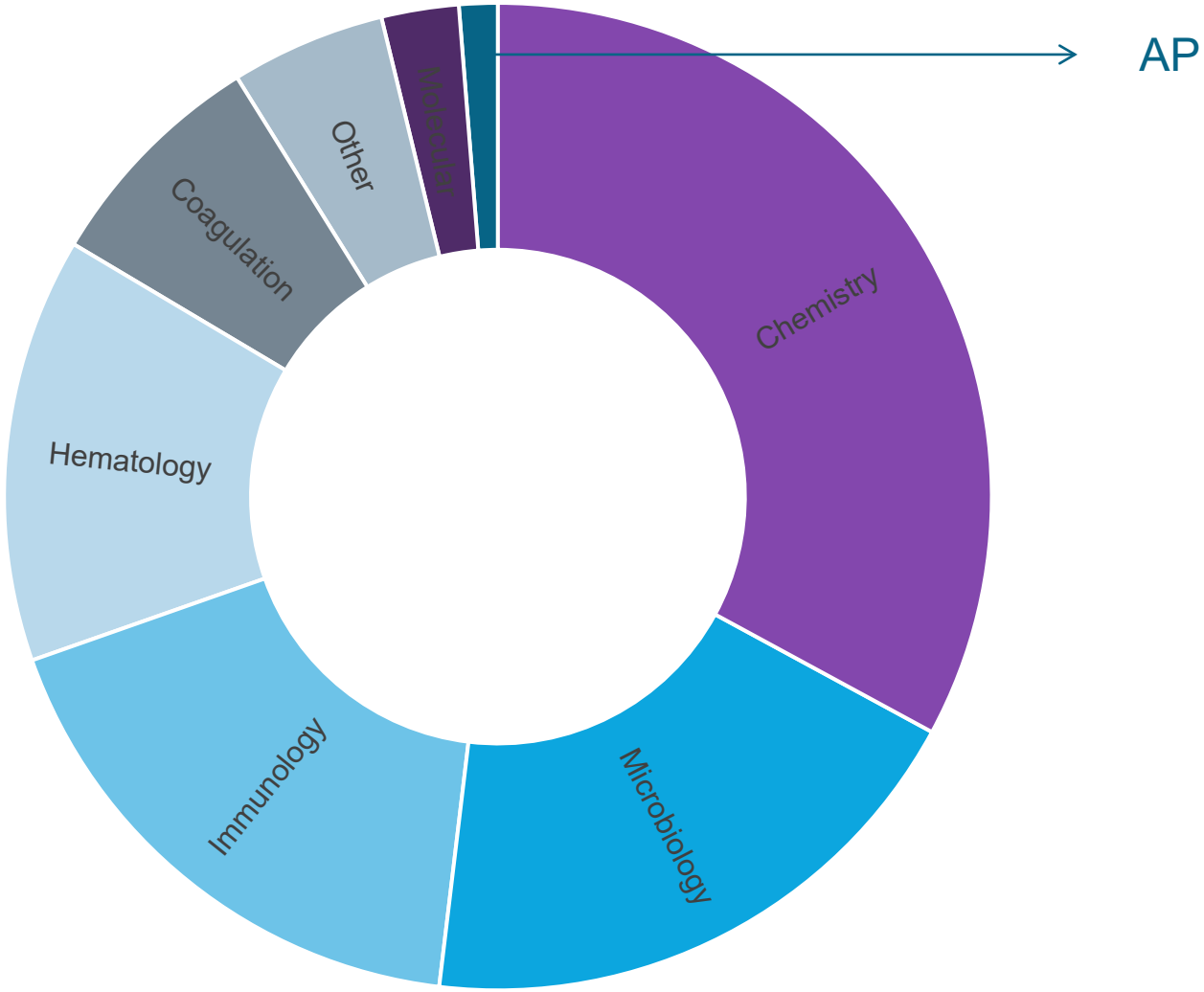
What Lab Specialty is the Question About?



Utilization Review Intervention

URI

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Residency - URI

- Utilization Review Intervention
  - Overutilization
    - HIT Ab
  - Underutilization
    - Cystatin C
  - Misutilization
    - Pathologist Smear Review

Residency - URI

- Overutilization
  - HIT Ab
    - 4T Score
    - Risk assessment based on severity
      - Degree of Thrombocytopenia (0-2pts)
      - Timing of Thrombocytopenia (0-2pts)
      - Thrombosis or other sequelae (0-2pts)
      - Other contributing factors or causes (0-2pts)
    - Total score range from 0-8pts
      - Low risk (0-3), Intermediate risk (4-5), High risk (6-8)

Residency - URI

- Overutilization
  - HIT Ab
    - 4T Score

Category	2 points	1 point	0 point
Thrombocytopenia	> 50% fall, or nadir ≥ 20 x 10^9/L	30–50% fall, or nadir 10-19 x 10^9/L	< 30% fall, or nadir < 10 x 10^9/L
Timing of the decrease in platelet count	Days 5 to 10, or ≤ day 1 with recent heparin (past 30 days)	> Day 10 or timing unclear, or < day 1 if heparin exposure within past 30-100 days	< Day 4 (no recent heparin)
Thrombosis or other sequelae	Proven thrombosis, skin necrosis, or acute systemic reaction after heparin bolus	Progressive, recurrent, or silent thrombosis; erythematous skin lesions	None
Other causes of thrombocytopenia	None evident	Possible	Definite

0 to 3 points: Low probability (risk of HIT <1 percent)
4 to 5 points: Intermediate probability (risk of HIT ~10%)
6 to 8 points: High probability (risk of HIT~50%)
(4)

Residency - URI

- Underutilization
  - Cystatin C
    - Advantages:
      - independent of muscle mass & diet
      - more accurate at detecting early renal impairment
      - strong predictor of clinical outcomes in patients with CVD
    - Disadvantages:
      - thyroid dysfunction, steroids, inflammation, high cell turn over
    - Ideal Populations:
      - Elderly, diabetics, children, liver disease, change in muscle mass, extreme BMIs

Residency - URI

- Misutilization
  - Pathologist Smear Review
    - Indicated in many instances – abnormal/immature cells, new leukemia, unexplained anemia, thrombocytopenia, etc***
    - Not indicated – Abnormal red cell morphology, IDA, known hemoglobinopathy
    - Laboratorians perform manual smear review for every manual differential plus some
      - Confusion that Heme Smear Review is performed anyone vs Path Review

Residency - URI

- How Do We Manage It???
  - Develop algorithms to support test ordering based on:
    - Cost
    - Frequency
    - Timing
    - Clinical Necessity/Indication

HIT Antibody Test Order Requirements

4Ts Clinical Scoring Tool

Thrombocytopenia

Compare the highest platelet count within the sequence of declining platelet counts with the lowest count to determine the percent of platelet fall

(Select only one option)

- ○ 2 - Platelet count fall >50% AND nadir >=20 x 10^3 cells/mm^3 AND no surgery within preceding 3 days
- ○ 1 - Platelet count fall 30-50% OR nadir between 10-19 x 10^3 cells/mm^3 OR platelet count fall > 50% but surgery within preceding 3 days
- ○ 0 - Platelet count fall <30% OR nadir <10 x 10^3 cells/mm^3

Timing (of platelet count fall or thrombosis)

Calculate the day of onset of platelet fall with day 0 being the first day of most recent heparin exposure

(Select only one option)

- ○ 2 - Clear onset between 5-10 days after heparin exposure OR onset <=1 day with prior heparin exposure within past 5-30 days
- ○ 1 - Consistent with onset between days 5-10 after heparin exposure but not clear (e.g., missing platelet counts) OR onset after day 10 of heparin exposure OR onset <=1 day with prior heparin exposure within past 31-100 days
- ○ 0 - Onset <=4 days without prior heparin exposure in past 100 days

Thrombosis (or other clinical sequelae)

(Select only one option)

- ○ 2 - New confirmed thrombosis (venous or arterial) OR skin necrosis at injection site OR anaphylaxis after UFH intravenous bolus OR adrenal hemorrhage
- ○ 1 - Recurrent venous thrombosis in patient receiving therapeutic anticoagulation OR suspected thrombosis (awaiting confirmation with imaging) OR non-necrotizing (erythematous) skin lesions at heparin injection site(s)
- ○ 0 - Thrombosis not suspected

Other cause(s) for thrombocytopenia

(Select only one option)

- ○ 2 - No alternative explanation for platelet fall is evident
- ○ 1 - Possible other cause(s) for platelet fall are evident
- ○ 0 - Probable other cause(s) for platelet fall are evident

Composite Score:

Possible other cause(s) for platelet fall are evident

- Sepsis without proven microbial source
- Thrombocytopenia associated with initiation of ventilator
- Patient location in intensive care unit
- Receipt of >=5 units packed red blood cells (PRBC)
- Acute or chronic liver disease

Right Click here for Policy Tech link

Probable other cause(s) for platelet fall are evident

- Confirmed bacteremia or fungemia
- Active malignancy, chemotherapy or radiation within past 20 days
- Disseminated intravascular coagulation (DIC) due to non-HIT cause
- Continous renal replacement therapy (CRRT)
- Mechanical device (i.e., Impella, intraaortic balloon pump)
- Extracorporeal membrane oxygenation (ECMO)
- Post-transfusion purpura (PTP), thrombotic thrombocytopenic purpura (TTP)
- Platelet count <20 x 10^3 cells/mm^3 AND exposure to drug implicated in causing drug-induced thrombocytopenia
- Non-necrotizing skin lesions at LMWH injection site(s)

Decision Support

Identified Order:
Hematology Smear Review

Reference

Hematology Smear Review

CarePlan information | Chart guide | Nurse preparation | Patient education | Policy and procedures | Scheduling information

Hematology Smear Review test will only be allowed every 180 days from the previous test order date placed by the ordering Physician.

Please make sure that the visit or current order has one or more of these diagnosis codes from the list below prior to order placement.

- Anemia, unspecified

- Secondary polycythemia

- Thrombocytopemia, unspecified

- Essential (hemorrhagic) thrombocytopemia

- Decreased white blood cell count, unspecified

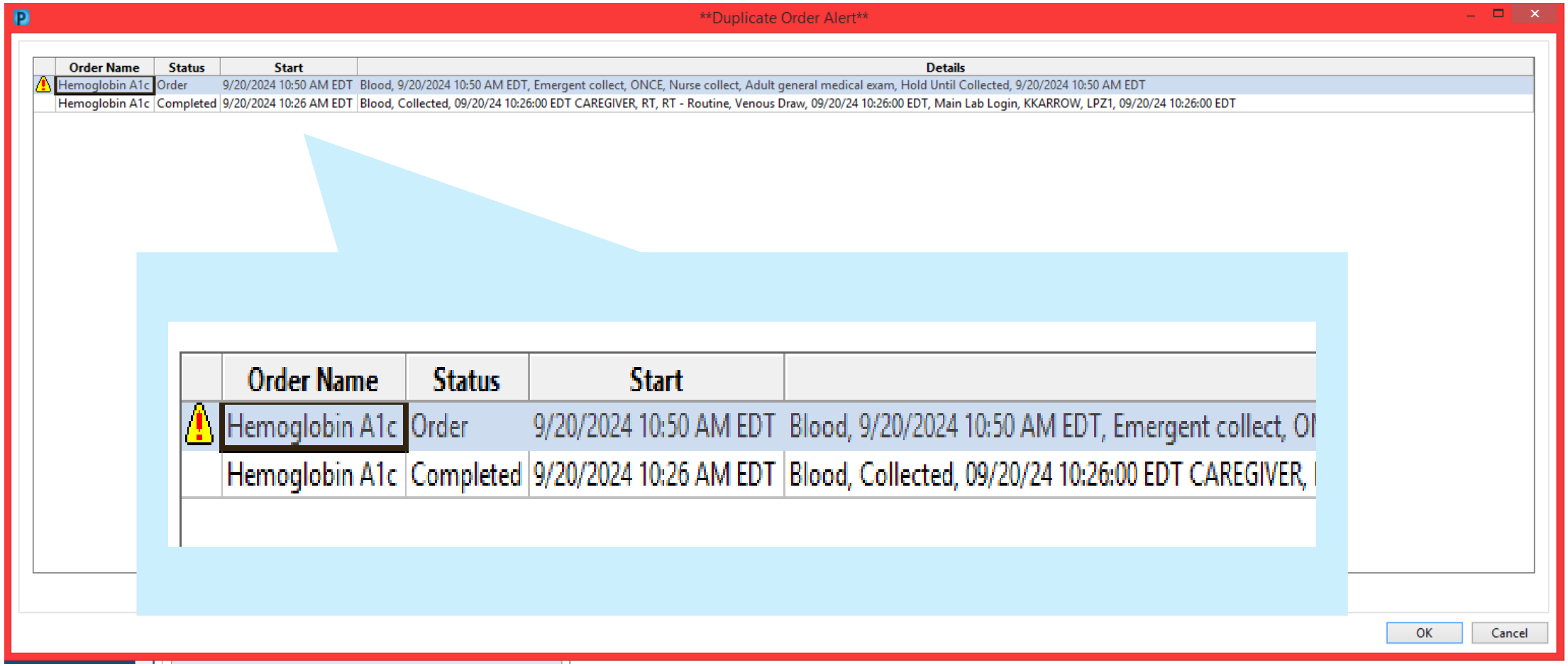
- Elevated white blood cell count, unspecified

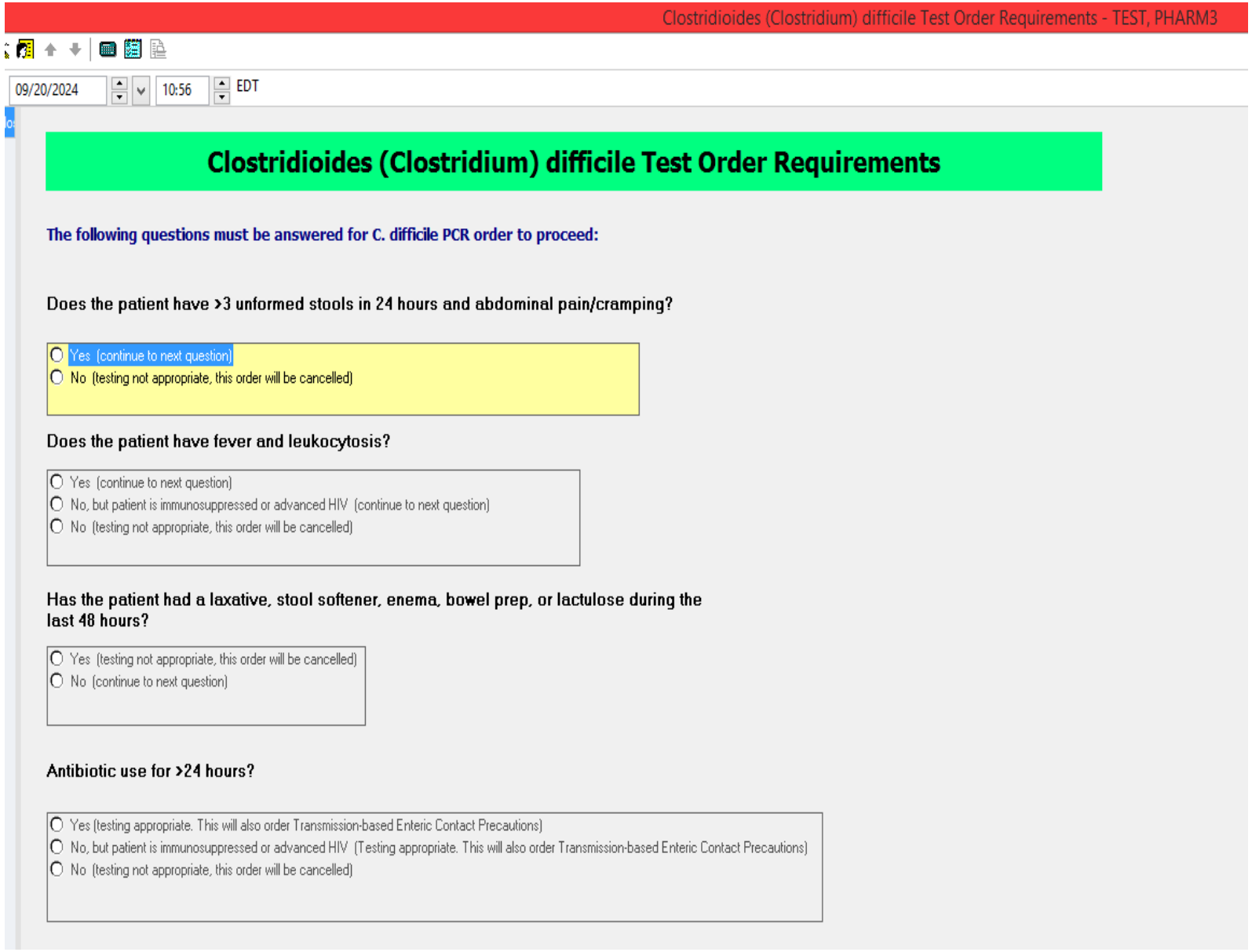
- Mycosis fungicides, unspecified site

- Other nonautoimmune hemolytic anemias

- Splenomegaly, not elsewhere classified

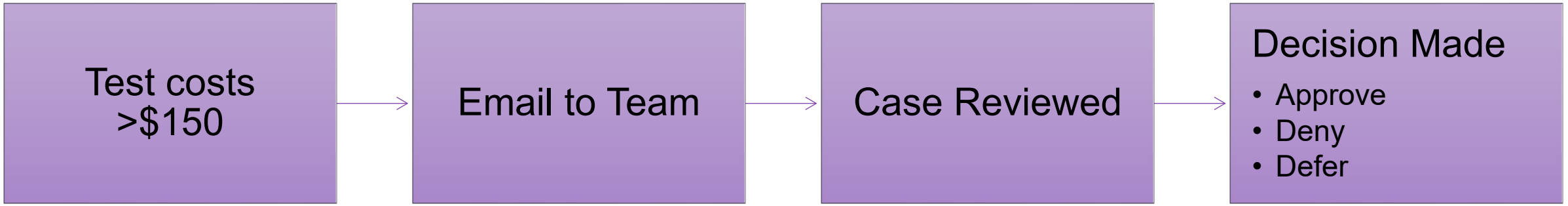
A1c testing frequency




Clostridioides (Clostridium) difficile Test Order Requirements - TEST, PHARM3
09/20/2024
10:56
EDT
Clostridioides (Clostridium) difficile Test Order Requirements
The following questions must be answered for C. difficile PCR order to proceed:
Does the patient have >3 unformed stools in 24 hours and abdominal pain/cramping?
Yes (continue to next question)
No (testing not appropriate, this order will be cancelled)
Does the patient have fever and leukocytosis?
Yes (continue to next question)
No, but patient is immunosuppressed or advanced HIV (continue to next question)
No (testing not appropriate, this order will be cancelled)
Has the patient had a laxative, stool softener, enema, bowel prep, or lactulose during the last 48 hours?
Yes (testing not appropriate, this order will be cancelled)
No (continue to next question)
Antibiotic use for >24 hours?
Yes (testing appropriate. This will also order Transmission-based Enteric Contact Precautions)
No, but patient is immunosuppressed or advanced HIV (Testing appropriate. This will also order Transmission-based Enteric Contact Precautions)
No (testing not appropriate, this order will be cancelled)

Residency - URI

- Specimen Referral Testing



URI Consult

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Consult Email

The following test requires pathology approval. Please reply within 24 hours*.

- Patient: ID
- DX: AKI
- Ordering physician: DR
- Test: Norovirus PCR, Molecular Detection
- Current performing lab: Mayo Clinic Lab
- Client price to AUMC and patient: $355.20
- Specimen requirements: Feces
- LNORO - Overview: Norovirus PCR, Molecular Detection, Feces (mayocliniclabs.com)
- Specimen collection date: 6/16/2024

Subjective

- Patient is 41 YOM
- CC: persistent diarrhea, found with acute kidney injury complicated by electrolyte derangements and poor p.o. intake.
- Hx: ESRD secondary to IgA nephropathy s/p LRKT (7/11/2014) & Gout

Subjective

6/3-6/5

- abd cramping and diarrhea x 11d
- Family w/ similar symptoms
- AKI & Low BPs
- C Diff & Shiga Toxin negative
- Camping trip?
- Dx: Immunosuppression therapy
- Px: NaHCO3*

6/12-6/14

- Same CC
- 20 lb weight loss over 1 month
- Intermittent chills
- Unable to obtain prescription
- Cruise to Bahamas
- Dx: Pancreatic Insufficiency w/NAGMA
- Px: Pancrelipase

6/15-6/21

- N+V
- Symptoms worsening
- Hypotension & Tachycardia
- Unable to obtain prescription

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Objective

Lab Results	6/15/2024 22:39 EDT
Hematology	
WBC	4.7 thous/mr
RBC	L 3.36 millior
Hgb	L 9.7 g/dL
POC Hgb	
Hct	L 28.1 %
POC Hct	
MCV	83.7 fL
MCH	29.1 pg
MCHC	34.7 g/dL
RDW	13.7 %
Platelet	206 thous/m
MPV	9.0 fL
Neut abs	3.7 thous/mr
Lymph abs	L 0.5 thous/r
Mono abs	0.5 thous/mr
Eo abs	0.0 thous/mr
Baso abs	0.0 thous/mr

Lab Results	6/15/2024 22:39 EDT
Chemistry	
Sodium Level	140 mEq/L
POC Sodium	
Potassium	C 2.6 mEq/L
POC Potassium	
Chloride	H 112 mEq/L
POC Chloride	
CO2	L 18 mEq/L
POC CO2	
BUN	H 36 mg/dL
POC BUN	
CREATININE	H 1.71 mg/d
POC Creatinine	
Glucose Lvl	H 144 mg/dl
POC GLU	
Calcium	L 8.4 mg/dL
Total Protein	5.9 g/dL
Albumin Lvl	3.5 g/dL
AST/SGOT	25 U/L
ALT/SGPT	32 U/L
Alk Phos	58 U/L
T. Bili	0.3 mg/dL

Lipase Level	H 196 U/L
Magnesium	C 1.1 mg/dL
POC Ionized Ca	
Calculated TIBC	
eGFR	* 51 mL/min,

- Fecal Lactoferrin: Pos
- CMV Qnt: Neg
- BKV Qnt: Neg
- Stool Cx: Neg
- Hepatitis Screen: Neg
- Tacrolimus: Normal

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Is Something Missing Here?

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GI Panel Order!

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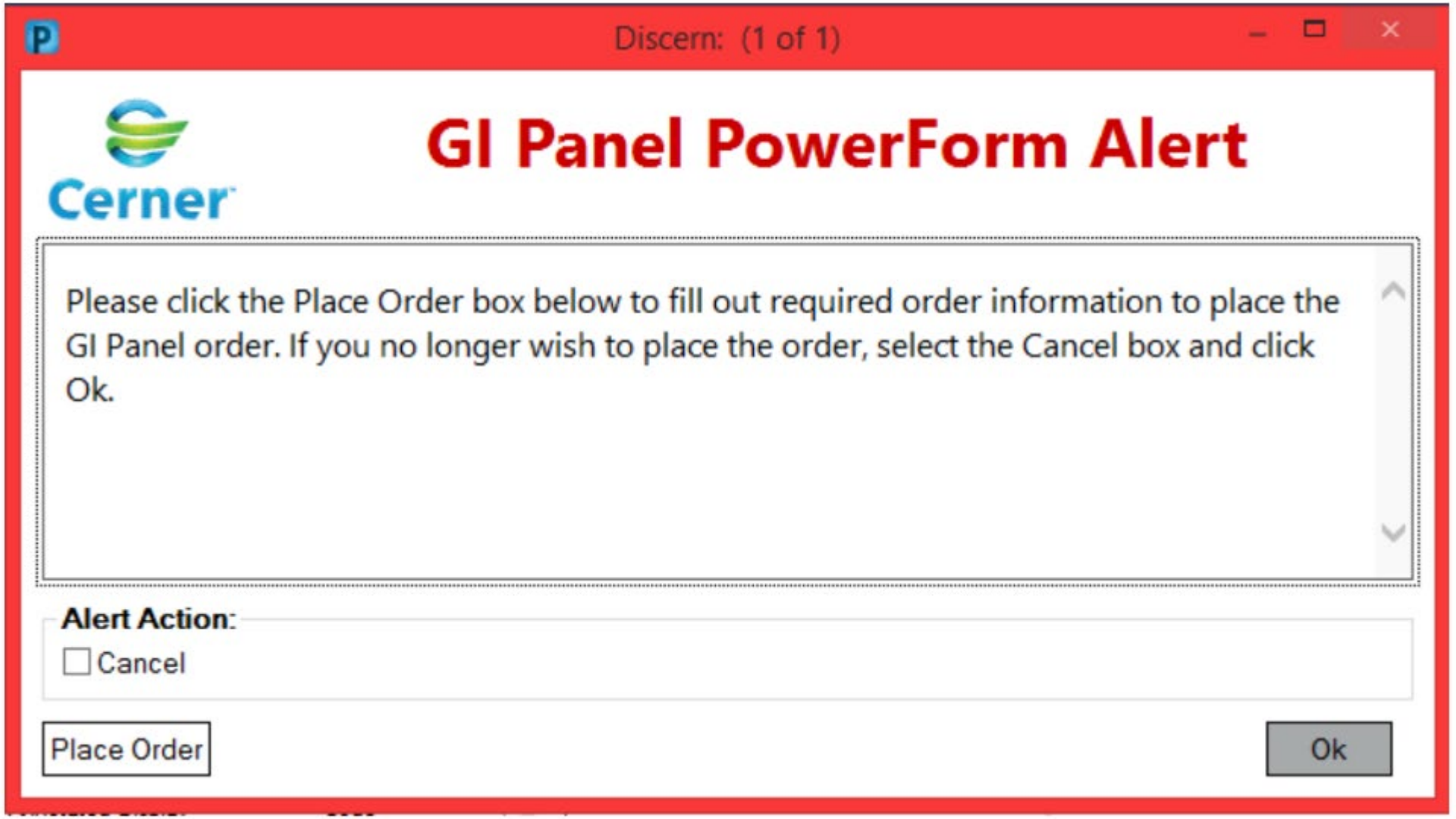
GI Panel



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GI Panel Test Order Requirements - TEST, PHARM3

09/20/2024 10:58 EDT

GI Panel Test Order Requirements

The following questions must be answered for GI Panel PCR order to proceed:

Does the patient have >3 stools in 24 hours described as watery, greasy, secretory, bloody, or explosive diarrhea?

- ○ Yes (continue to next question)
- ○ No (testing not appropriate, this order will be cancelled)

Has the patient had a laxative, stool softener, enema, bowel prep, or lactulose during the last 48 hours?

- ○ Yes (testing not appropriate, this order will be cancelled)
- ○ No (testing appropriate, order will proceed)

GI Panel Orders

- Orders: 6/4, 6/14 x3, 6/16, 6/17 x2
- Testing appropriate, order will proceed
- No charts notes documenting order issues or follow up
- Consult LIS & IT
- Consult Microbiology MD

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Email to Specimen Referral Team (Assessment/Plan)

- Given the following clinical picture, **I suggest deferring this send out until the GI Panel ordering issue can be resolved.** The GI Panel can be done in-house and includes testing for Norovirus and many other enteric pathogens. Patient has already agreed to the cost that is not covered by insurance, according to chart notes on 6/13 by NP

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LIS/IT

- 2 alerts
  1. Documentation which she completed and that did add the GI Panel to the scratch pad (but not signed yet).
  2. Insurance
     - In this alert personnel opted to remove the GI Panel

- The Alert instructs alternative labs that can be ordered

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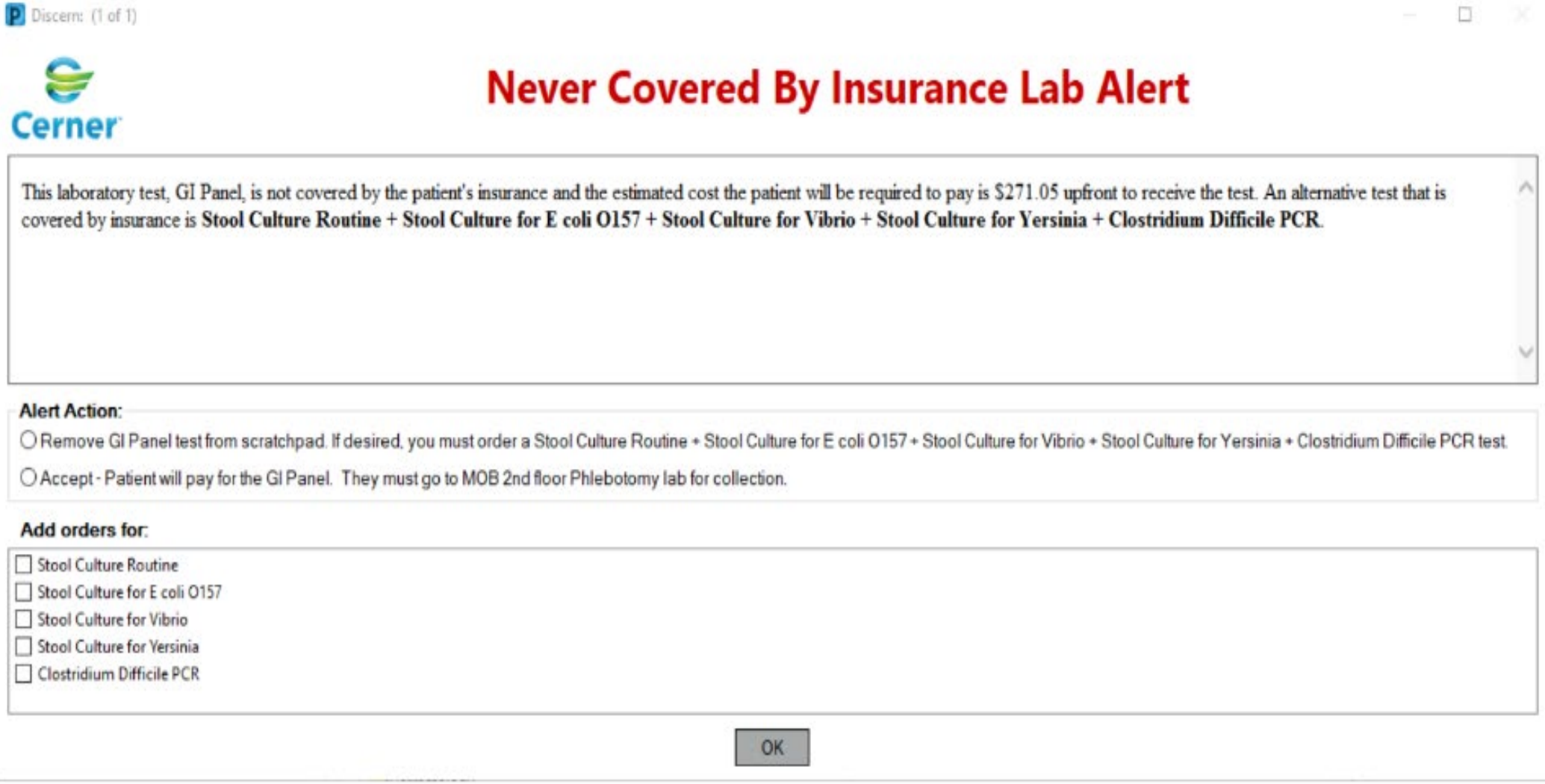
GI Panel



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Microbiology

- Send sample to Micro
- GI Panel Ordered & Performed

Lab Results	6/18/2024 10:21 EDT
Campylobacter	Not Detecte
Clostridium difficile toxin A/B PCR	NOT_DETEC
Plesiomonas shigelloides	Not Detecte
Salmonella	Not Detecte
Vibrio	Not Detecte
Vibrio cholerae	Not Detecte
Yersinia enterolitica	Not Detecte
Enteroaggregative E. coli (EAEC)	Not Detecte
Enteropathogenic E. coli (EPEC)	Not Detecte
Enterotoxigenic E. coli (ETEC)	Not Detecte
Shiga-like toxin-producing E. coli (STEC	Not Detecte
E. coli 0157 PCR	Not Applicab
Shigella/Enteroinvasive E. coli (EIEC)	Not Detecte
Cryptosporidium	* A Detected
Cyclospora cayetanensis	Not Detecte
Entamoeba histolytica	Not Detecte
Giardia lamblia	Not Detecte
Adenovirus F 40/41	Not Detecte
Astrovirus	Not Detecte
Norovirus GI/GII	Not Detecte
Rotavirus A	Not Detecte
Sapovirus	Not Detecte

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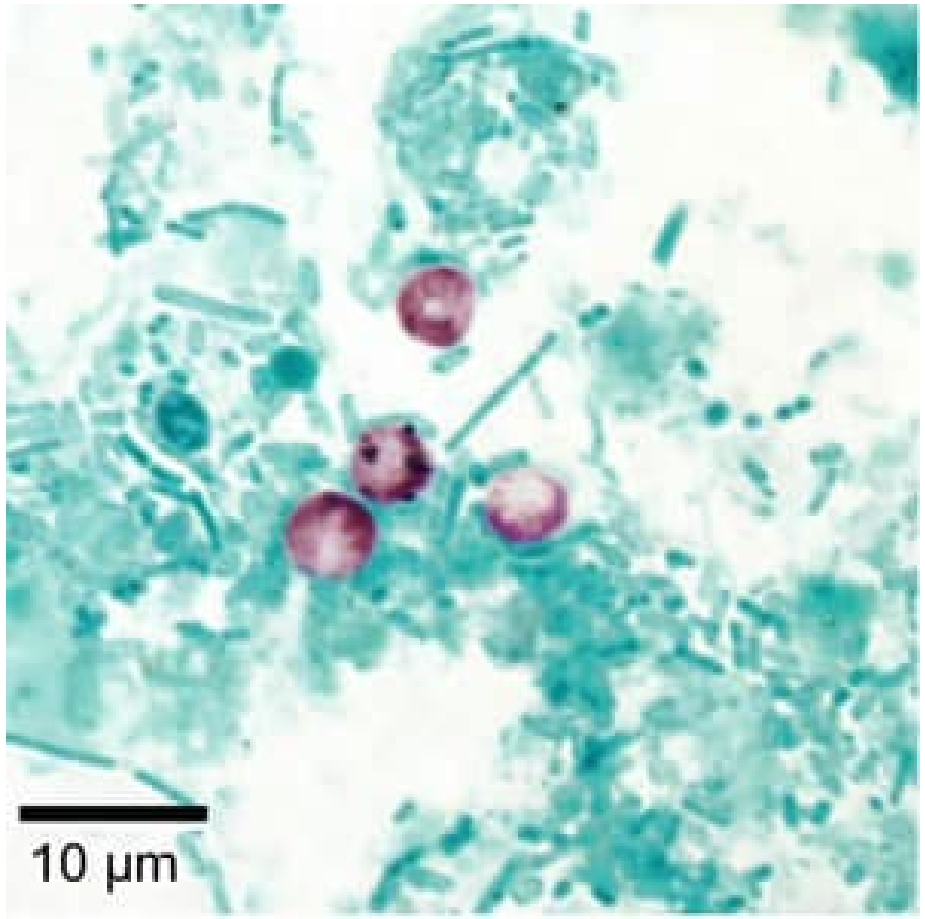
Final Assessment

- Dx: Cryptosporidiosis
  - GI Parasite
- Risk Factors:
  - Immunosuppression
  - Children
  - Cattle handlers
  - Swimming
  - Eating contaminated food



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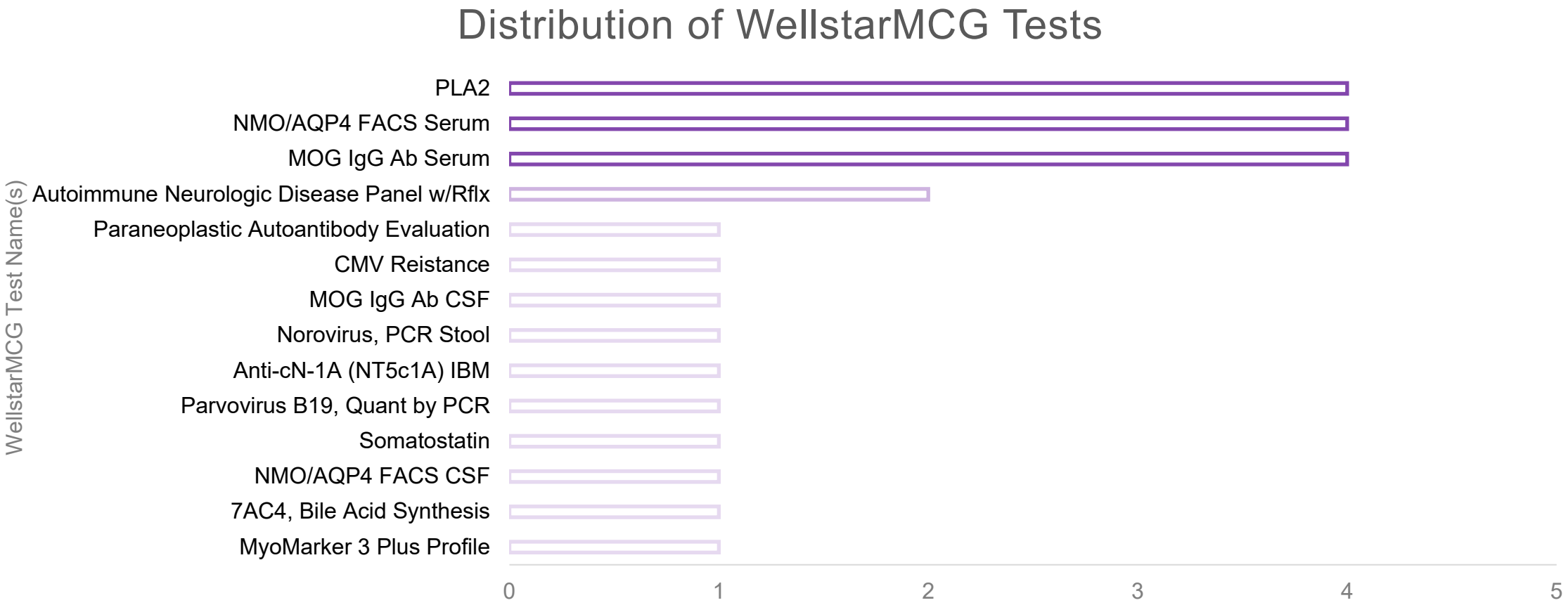
Residency – URI

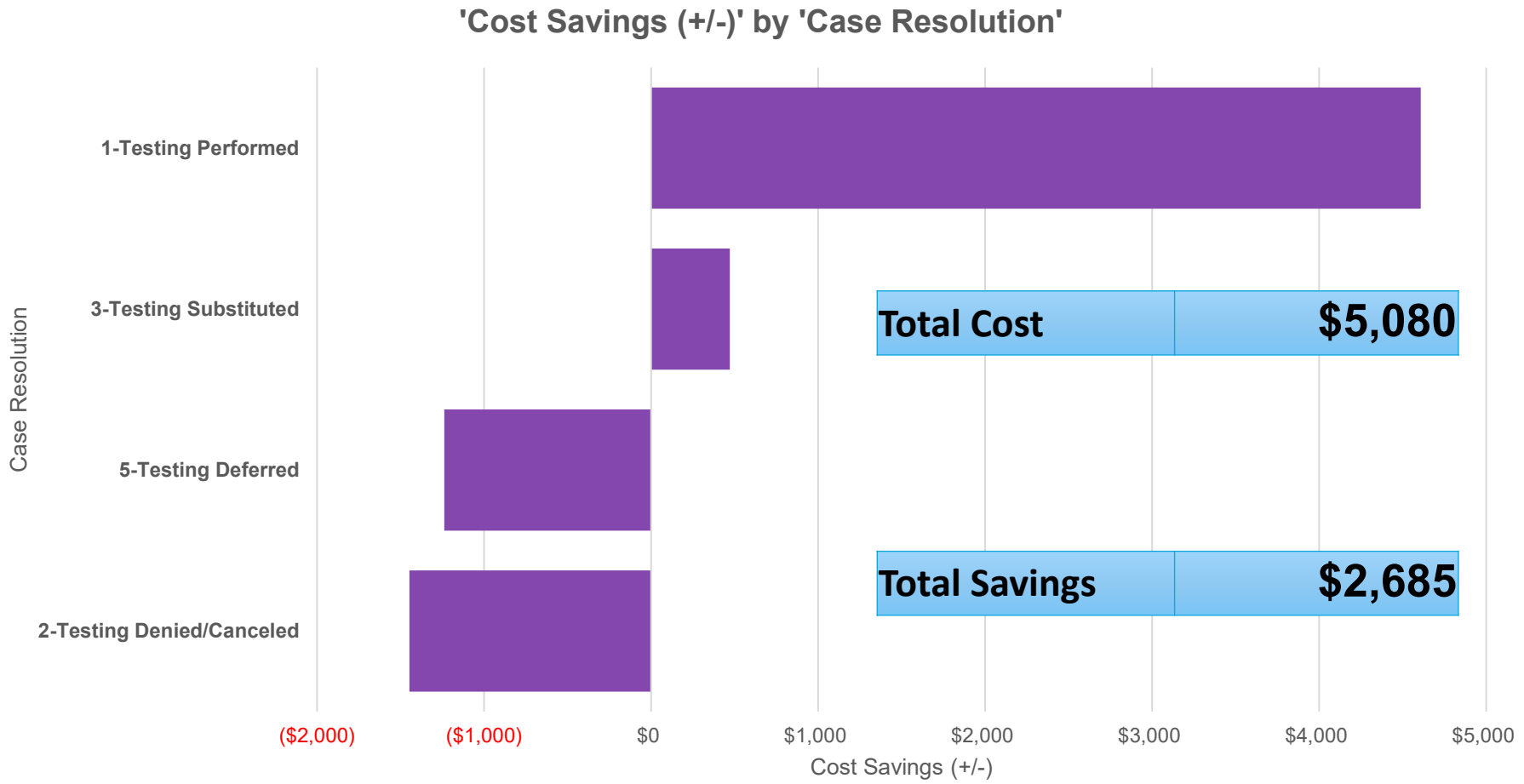
WellstarMCG Ordering Service / Location	Count
18-Neurology	7
26-Pediatrics	4
14-Medicine (Gen)	3
16-MedICU	3
29-Rheumatology	1
23-Oncology	1
17-Nephrology	1
8-Family Medicine	1
9-Gastroenterology	1
13-Infectious Disease	1
21-NurseryICU	1
Grand Total	**24**

Residency – URI



Case Resolution	WellstarMCG Test Name(s)	Count of WellstarMCG Test(s)
5-Testing Deferred	Anti-cN-1A (NT5c1A) IBM	1
	MOG IgG Ab CSF	1
	NMO/AQP4 FACS CSF	1
	Norovirus, PCR Stool	1
	PLA2	1
1-Testing Substituted	Paraneoplastic Autoantibody Evaluation	1
7-Testing Denied/Canceled	7AC4, Bile Acid Synthesis	1
	MOG IgG Ab Serum	1
	NMO/AQP4 FACS Serum	1
	PLA2	3
	Somatostatin	1
11-Testing Performed	Autoimmune Neurologic Disease Panel w/Rflx	2
	CMV Reistance	1
	MOG IgG Ab Serum	3
	MyoMarker 3 Plus Profile	1
	NMO/AQP4 FACS Serum	3
	Parvovirus B19, Quant by PCR	1
Grand Total		**24**

Residency – URI



Consumer Information Response

CIR

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OneCare Media (Testing.com)

Testing.com is owned and operated by OneCare Media.

General questions

For answers to common questions about Testing.com, please see our FAQs page.

Please direct general questions to contact@testing.com.

Question about ordering a lab test

Please see our How it Works page for additional information on ordering lab tests and at-home test kits.

Question about a lab test

If you have a question about a lab test and want to ask a laboratory professional, our partner offers a free Consumer Information Response Service. Please submit your question via the Ask a Laboratory Scientist form. Please allow 2-3 business days for an email response from one of the volunteer laboratorians.

Contact us

Address: 1414 NE 42nd Street, Suite 400, Seattle, WA 98105 U.S.A

Contact email address: contact@testing.com

Orders: orders@testing.com

Support Contact: (877) 511-5227

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Last modified on Apr 20, 2021

Ask a Laboratory Scientist

This form enables patients to ask specific questions about lab tests. Your questions will be answered by a laboratory scientist as part of a voluntary service provided by one of our partners, American Society for Clinical Laboratory Science. Please allow 2-3 business days for an email response from one of the volunteers on the Consumer Information Response Team.

Name*
First Name
Last Name
Please indicate whether you are a*
Email
Confirm Email*
Subject
Question or Comment*
Country* United States

Please review the following:

- Privacy Policy
- Terms of Use
- Disclaimer

I have read and agree to the:*
- ☐ Privacy Policy
- ☐ Terms of Use
- ☐ Disclaimer

Submit Form

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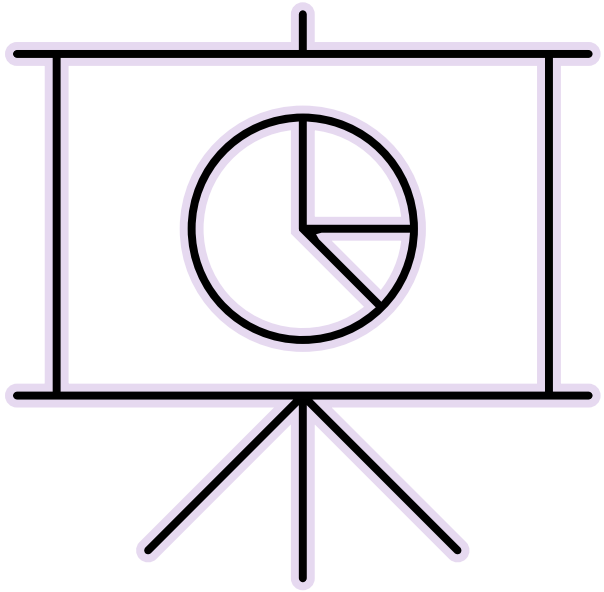
Data Analysis



40 Questions

- Consumers can be anyone!
- Characterizations:
  - Submitter background
  - Lab Specialty
  - Type of Question
  - Number of Questions
  - Topic
  - Was More Info Needed?
  - Scope of Practice

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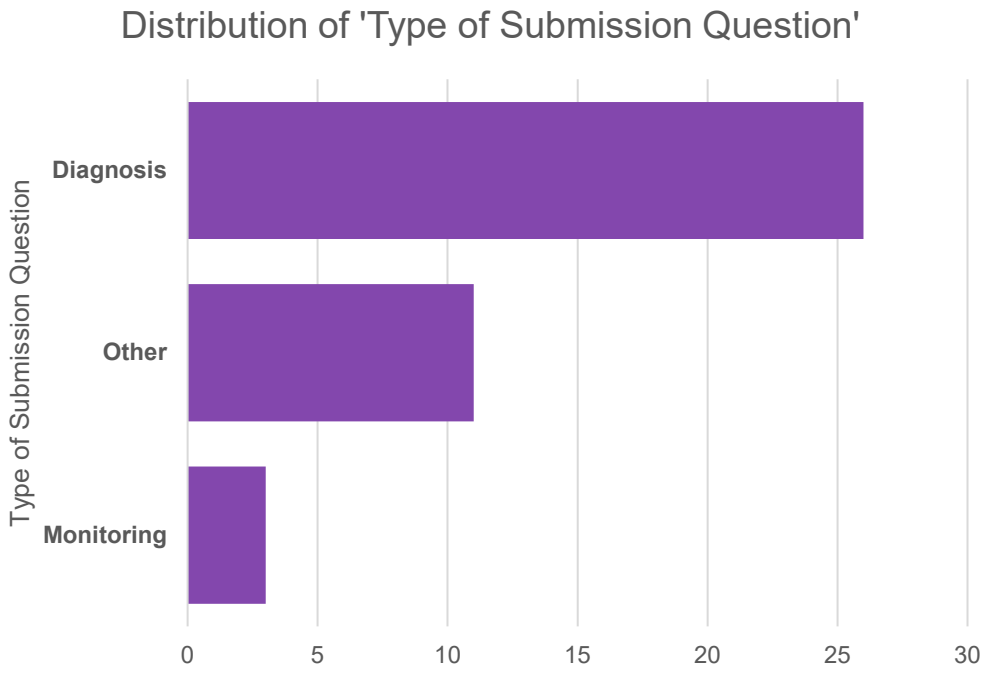
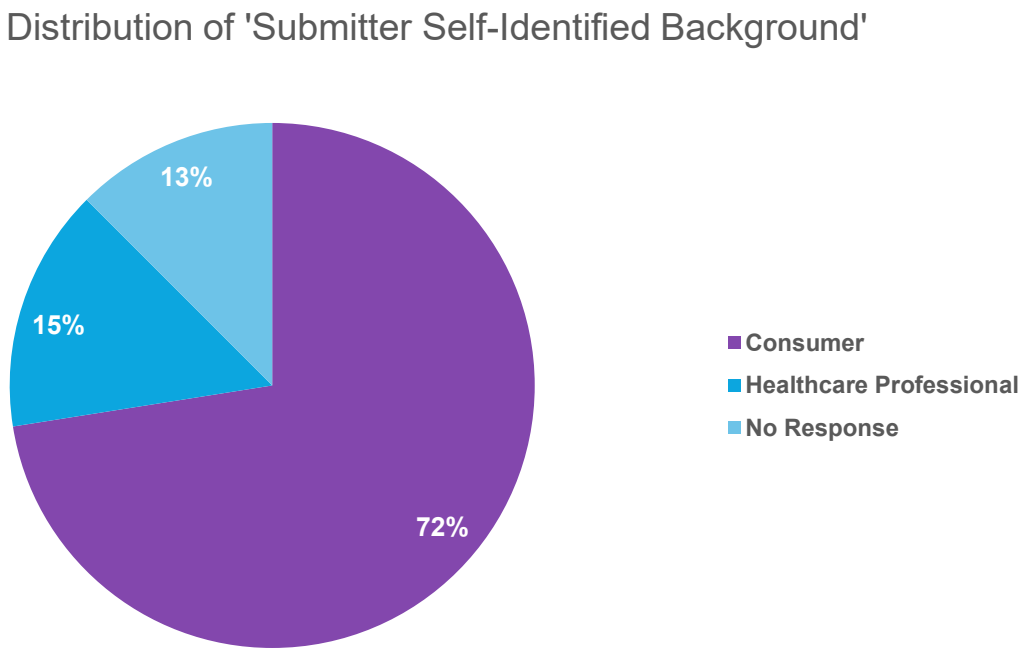
Questions by Submission Type & Submitter





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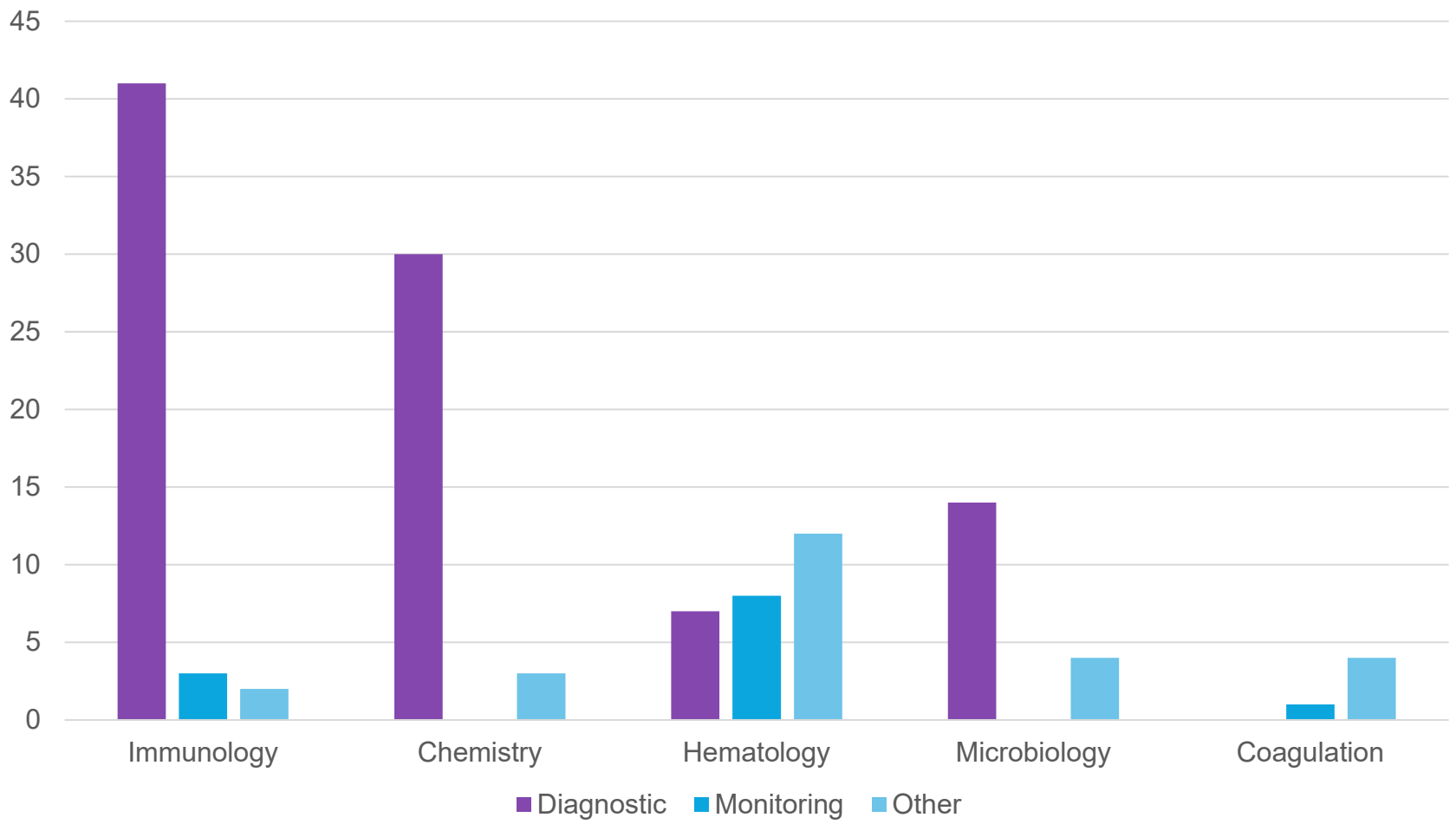
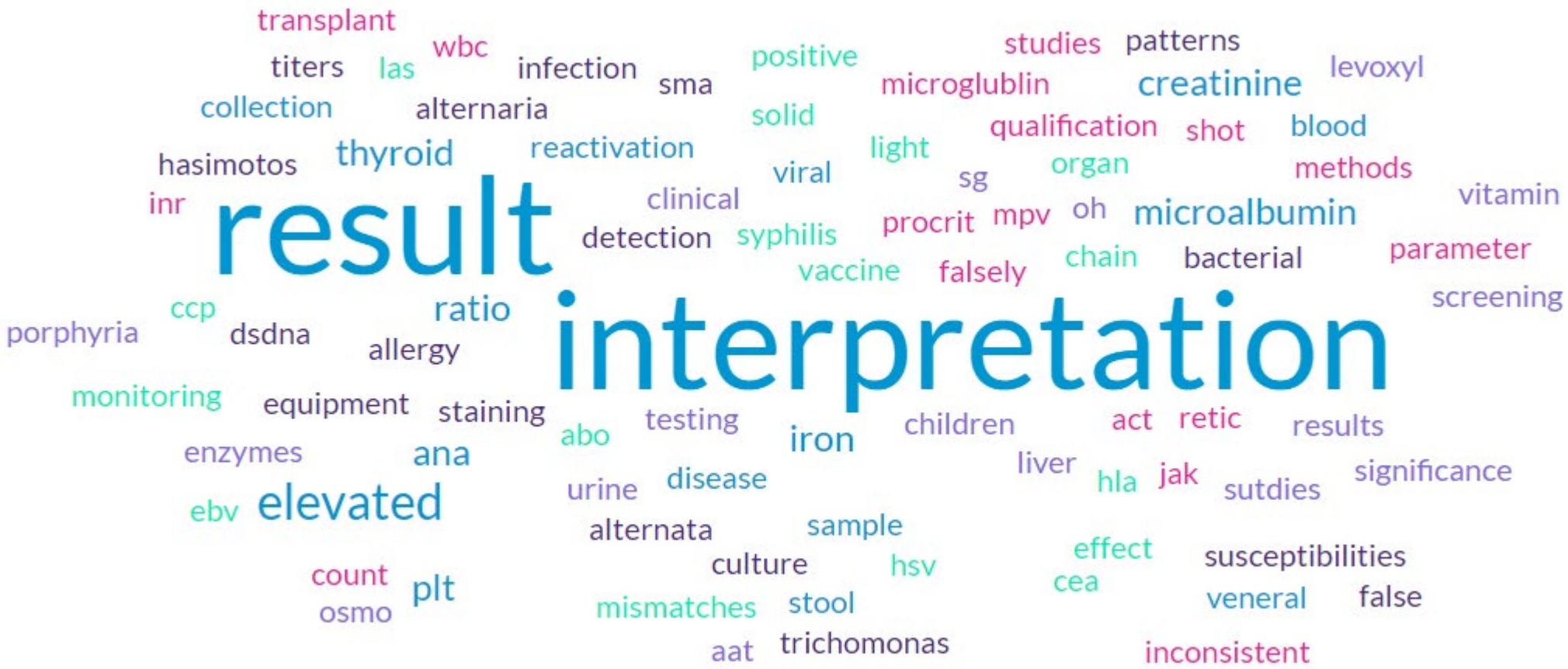
Number of Questions by Question Type & Specialty



Topics by Submitter

	Submitter Self-Identified Background			
Topic	**Consumer**	**Healthcare Professional**	**No Response**	**Grand Total**
Treatment modification	2			2
Screening Tests		1		1
Sample Collection	1			1
Result Interpretation	24		1	25
Procedure		1	1	2
Methods		1		1
Interference			2	2
Incubation Period		1	1	2
False Results	2			2
Equipment		1		1
Clinical Significance		1		1
Grand Total	**29**	**6**	**5**	**40**


transplant
wbc
titers
las
infection
positive
studies
patterns
sma
microglublin
creatinine
levoxyl
collection
alternaria
solid
qualification
shot
blood
hasimotos
thyroid
reactivation
light
organ
methods
viral
sg
inr
result
clinical
vitamin
detection
syphilis
procrit
mpv
oh
microalbumin
vaccine
falsely
chain
bacterial
parameter
ccp
ratio
interpretation
screening
porphyria
dsdna
allergy
monitoring
equipment
staining
abo
testing
iron
children
act
retic
results
enzymes
ana
liver
hla
jak
significance
urine
disease
sutdies
ebv
elevated
alternata
sample
effect
susceptibilities
culture
hsv
cea
count
plt
veneral
false
osmo
mismatches
stool
aat
trichomonas
inconsistent

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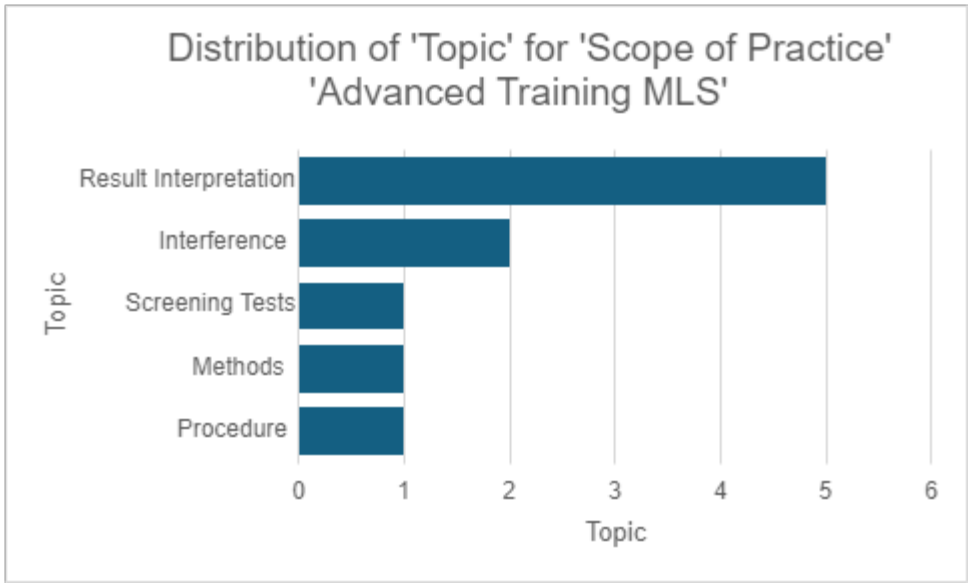
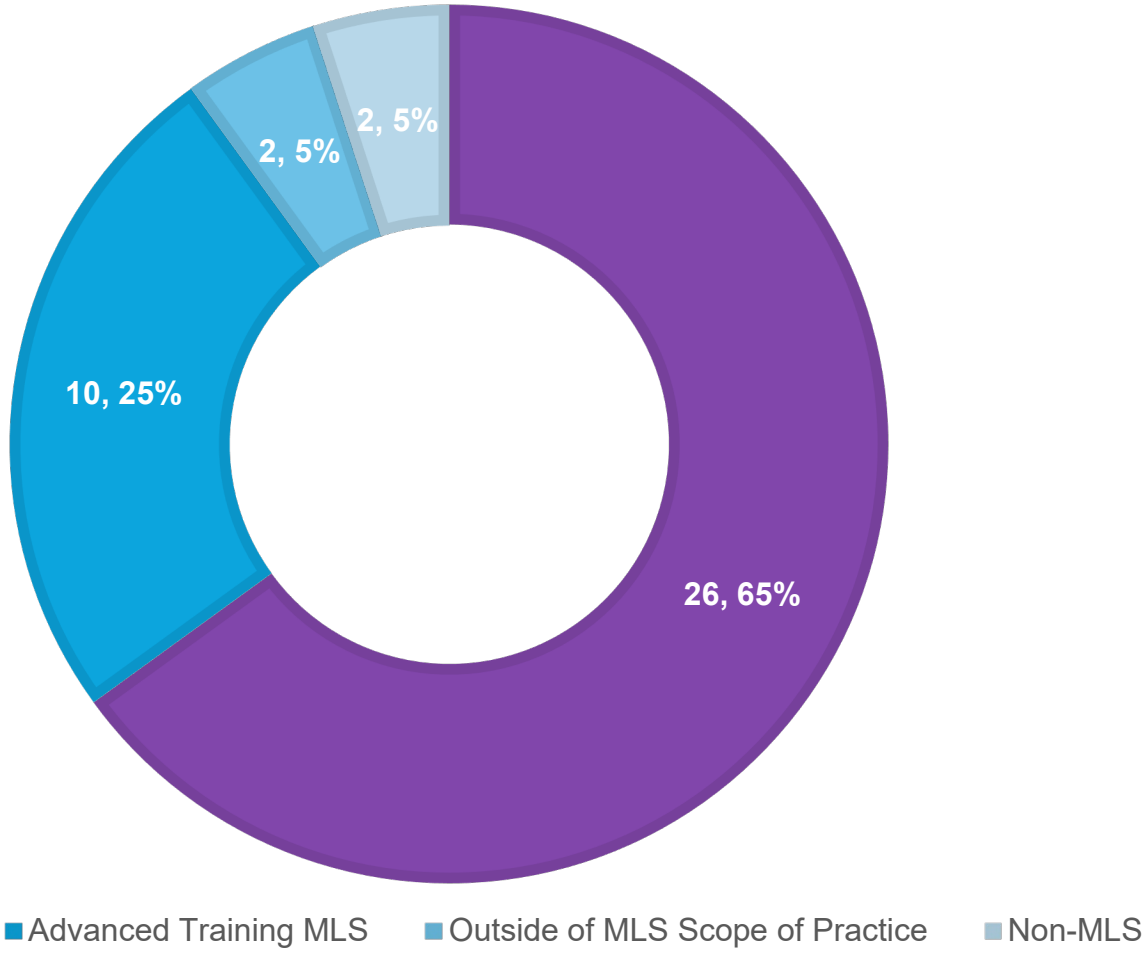
Scope of Practice



'Topic' for 'Scope of Practice' 'Non-MLS'

Topic
Equipment
Sample Collection



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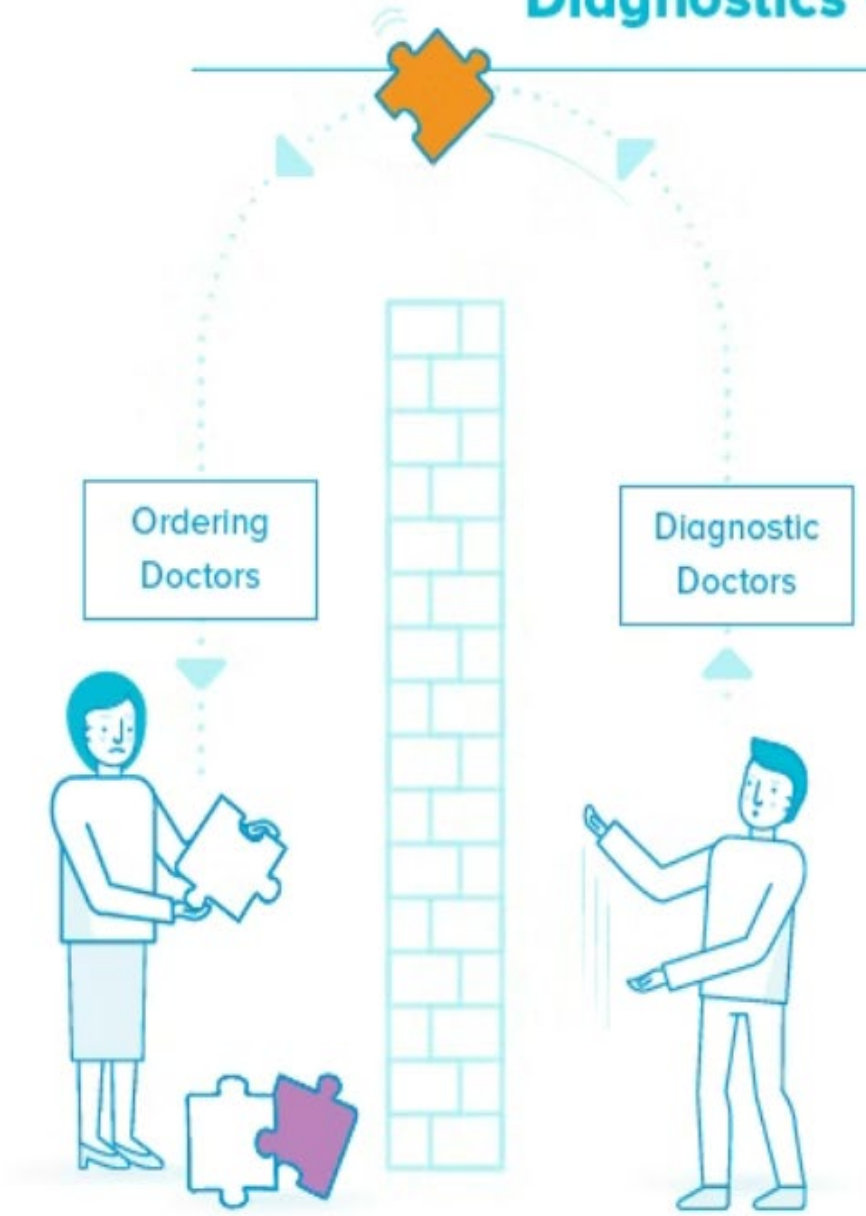
Residency – DMI

- Diagnostic Management Intervention
  - Interdisciplinary team or focus group
    - Specific patient/patient type/specialty
    - Selection of tests
    - Interpretation of complex test results
  - Aid in accurate and timely patient diagnosis
  - Improved communication
  - Access to diagnostic specialists

Diagnostics Without DMTs



In a healthcare organization using a conventional approach—without a DMT—the treating physician orders specific tests based on assessment of the patient. To make matters more confusing, the same test may be called by many different names (e.g., 5–10 different names for the same test to measure the amount of vitamin D in the blood), long test names are abbreviated so they can no longer be understood, and some tests are identified by the method used rather than by what they measure.

In many cases, the doctor guesses about test selection and often doesn't know the cost of the ordered tests.[5] He or she may order multiple tests unnecessarily, with costs for useless information running into thousands of dollars.

The laboratory then returns raw results to the ordering doctor, who's left to assemble and try to make sense of the information.

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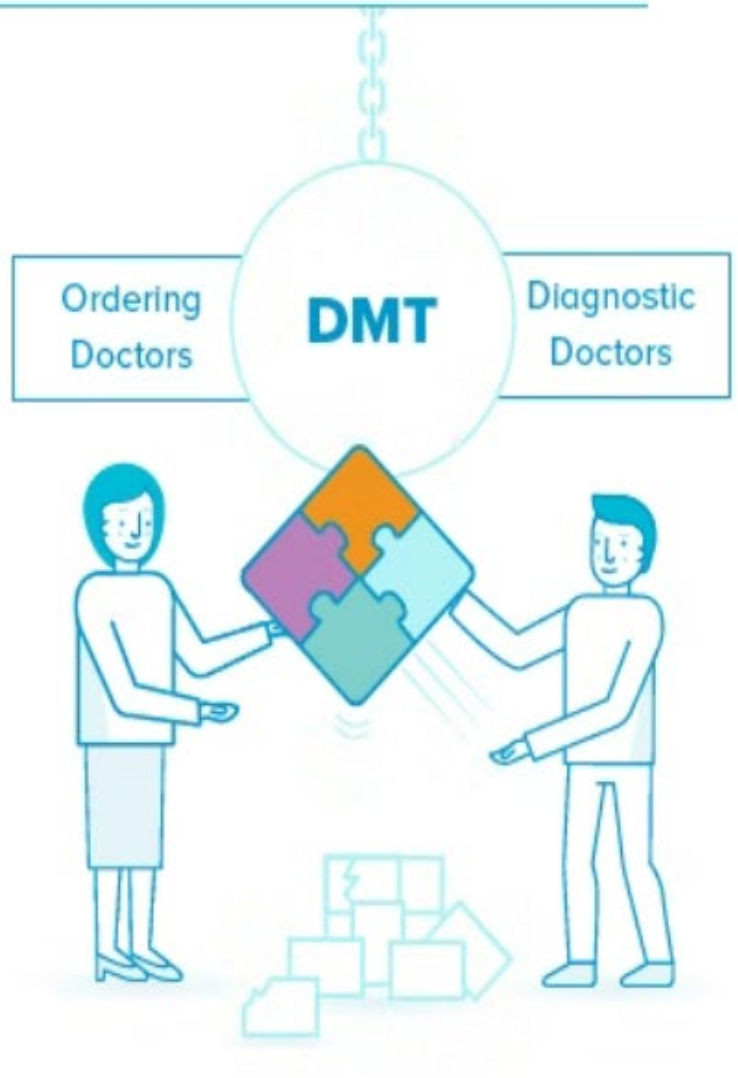
DMTs to the Rescue

In contrast, a DMT works with the patient's blood sample and uses evidence-based algorithms to determine only the necessary tests to reach a definitive diagnosis. The diagnosis in a paragraph understandable to all healthcare providers is quickly provided back to the ordering doctor. While the diagnosis is being determined by the DMT, the ordering doctor can proceed to caring for other patients.

The DMT reduces unnecessary testing, increases the use of the most informative tests, and then tells the ordering doctor what the test results mean in the form of a expert-driven, patient-specific narrative.

In short, a quick, accurate diagnosis gets the patient diagnosed and trreated sooner—thanks to the DMT.



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Simplified, Streamlined and Actionable

Before DMT

Pat-PT: 13.9	PT-inr: 1.1	PTT-pt: 43.6*	PoolNP: 28.1
P+N0Hr: 38.3	P+N1Hr: 36.2	P+N2Hr: 35.9	Pat-TT: 15
F8Act: 95	F9Act: 102	RVVT: 1.5*	DRVVT:
Lupus Anticoagulant Confirmed		DMX: 1.3	F11Act: 96
F12Act: 54			

This is how lab test data with hopelessly confusing test abbreviations would appear in a hospital's medical record prior to implementation of a DMT for coagulation interpretations. The ordering doctor has selected 13 tests, but still has no diagnosis. In fact, some tests needed to make the diagnosis were not ordered.

Now look at the same patient's medical record after a DMT interprets complex evaluations from the coagulation laboratory. The treating doctor didn't need to know the exact tests to order. The lab directors on the DMT read the patient's clinical record, reviewed the test results, and then explained in the narrative the possible diagnoses and what the treating doctor should do next.

After DMT

This patient has an elevated PTT, with a normal PT/INR and normal thrombin time.

A PTT mixing study failed to correct into the normal range. These results were consistent with the presence of an inhibitor (such as a lupus anticoagulant) in the sample.

The Dilute Russell Viper Venom time (dRVVT) is used for detection of Lupus Anticoagulant, and the test was positive, indicating the presence of Lupus Anticoagulant.

Taken together, this is a patient with a prolonged PTT based upon the presence of a lupus anticoagulant. There is no increased bleeding risk in this patient, despite the prolonged PTT.

At institutions such as Massachusetts General Hospital and Vanderbilt University Medical Center, DMTs have demonstrated the ability to save money and improve patient outcomes.

Cost per patient encounter decreased due to a drop in unnecessary tests.

Expedited diagnoses led to shorter hospital stays for inpatients (a savings approximated at $2,000 per day).

At the same time, increased use of appropriate tests resulted in fewer clinical complications than would have otherwise occurred. Patients required fewer repeat visits, saving time for treating doctors and increasing the overall number of patients seen.

Vanderbilt estimated its savings from five DMTs at about **$3 million over 3 years.**

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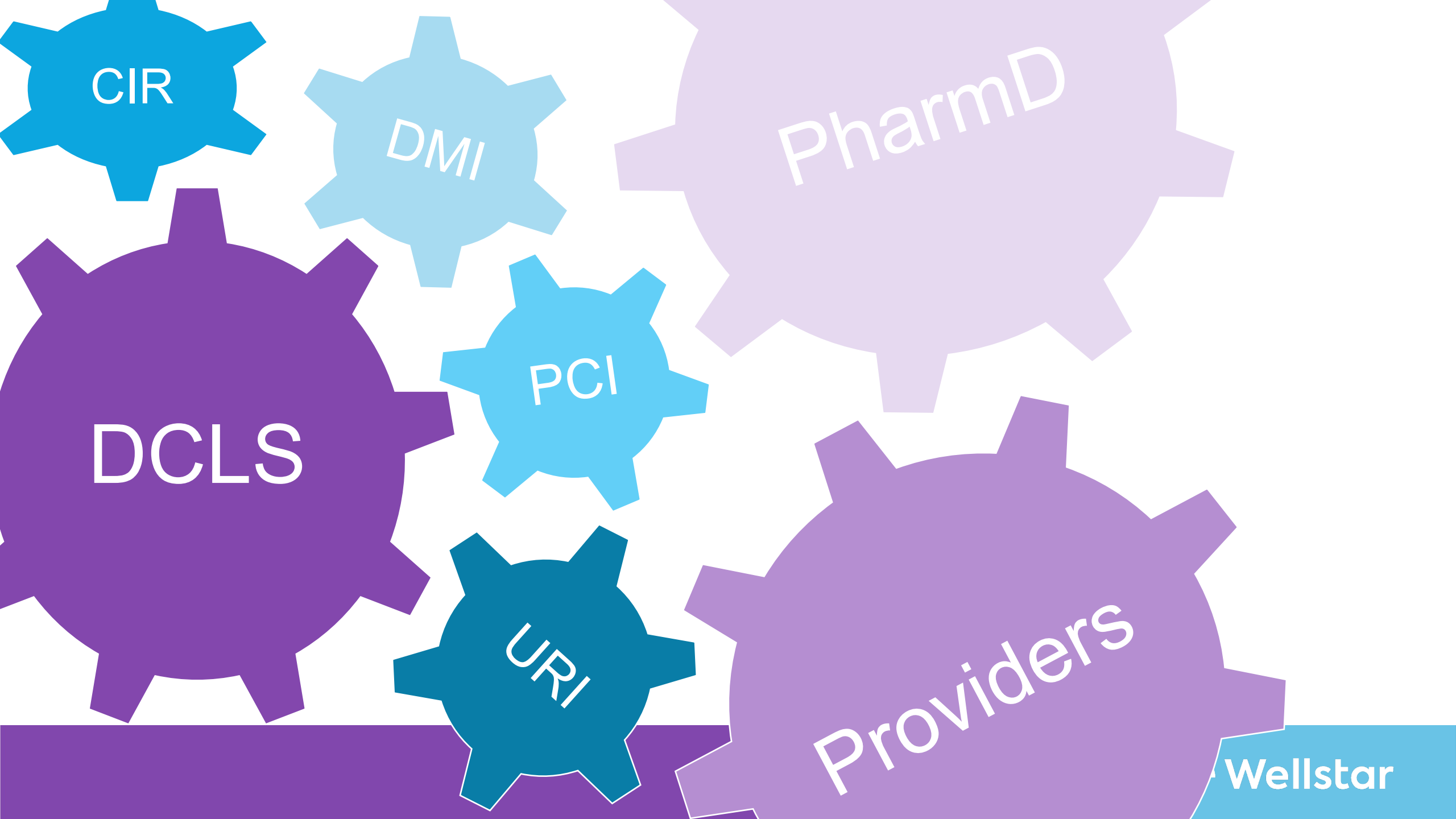
CIR
DMI
PharmD
DCLS
PCI
URI
Providers
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References

- https://www.imfastfacts.com/dialysis-disequilibrium-syndrome/
- Bickett AN, Lower EE, Baughman RP. Sarcoidosis Diagnostic Score: A Systematic Evaluation to Enhance the Diagnosis of Sarcoidosis. *Chest*. 2018;154(5):1052-1060. doi:10.1016/j.chest.2018.05.003
- https://healthjade.net/sarcoidosis/
- https://www.grepmed.com/images/3495/hit-diagnosis-4tscore-induced-thrombocytopenia
- https://www.cdc.gov/dpdx/cryptosporidiosis/index.html
- https://www.testing.com/contact-us/
- https://lableaders.roche.com/global/en/articles/what-is-a-diagnostics-management-team-1599.html