UNIVERSITY MEDICAL CENTER OF EL PASO

Path-O-Gram

Pathology laboratory news for you!

Dr. Jude Abadie, Editor | June 2022 | Volume 2 | No. 2

TTUHSC EL PASO
Texas Tech University Health Sciences Center El Paso
Department of Pathology
FOSTER SCHOOL OF MEDICINE

Headlines:

- Pathology Residency Program - Bone Marrows - Anemia Power Plan - Eosinophilia and Strongyloiedes - Lab Stewardship

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I. Pathology Announcements

Dr. Jude Abadie

PATHOLOGY RESIDENCY PROGRAM BEGINS in JULY 2023!

Our pathology department is ecstatic to announce that our four-year combined Anatomic and Clinical Pathology residency program received AGGME accreditation! We are grateful for the strong support from TTUHSC El Paso and UMC leadership, as well as for the smart work of all our faculty through the application and interview processes. We will have three starts per year, for a total of 12 resident slots for the four-year program.

Faculty Highlights

In 2022, the Myelodysplastic/Myeloproliferative Neoplasms International Working Group presents a series of lectures as part of their "The one-of-a-kind clinical Roadmap.". This monthly lecture series features a live debate across the Atlantic, between EU and U.S. speakers on MDS/MPN. Our Pathology Department chair, Dr. Attilio Orazi, presented "Pathological nuances of MDS/MPNs: How the morphology guides treatment" in Jan 2022. This recording, and others, can be seen at the following link: MDS/MPN Overlap Syndromes Roadmap 2022 (md-education.com) https://mds-mpnroadmap.md-education.com

Additionally, Dr. Attilio Orazi is included with other four TTUHSC faculties members, including Dr. Richard Lange, our university president, among the top 2% of more than 6 million cited authors in science journals worldwide, according to a peer-reviewed database created in 2019 by a team led by John P.A. Ioannidis, M.D., D.Sc., co-director of the METRICS Meta-Research Innovation Center at Stanford University. See the fol-

lowing link for the full report: http://eptech-view.ttuhsc.edu/ttuhsc-el-paso/ttuhsc-el-paso-faculty-among-most-cited-research-authors-in-the-world/

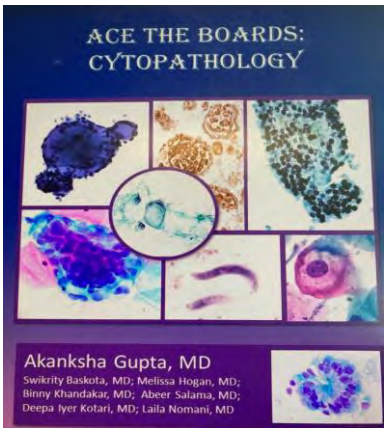
Welcome Dr. Abeer M. Salama

Dr. Salama's appointment to our pathology department will begin in July 2022, and we enthusiastically await her arrival. She grew up in Saudi Arabia and earned a Master of Advanced Science with a concentration in clinical research at the University of California-San Diego. She completed a combined Anatomic and Clinical Pathology residency training at Icahn School of Medicine – Mount Sinai Hospital in New York. In addition to completing an ACGME accredited Oncologic Surgical Pathology and Cytopathology fellowship at Memorial Sloan Kettering Cancer Center in New York, Dr. Salama also completed an additional year of Women's Health Fellowship (combined breast and gynecological pathology) at New York University- NYU Langone Health. We are quite proud and fortunate that Dr. Salama is joining our TTUHSC El Paso pathology department/family.

Dr. Salama is looking forward to working closely with pathologists, oncologists, and surgeons to provide high-quality diagnostic cytology, breast, and gynecological pathology.

Dr. Salama currently serves as a chief editor in multiple multimedia digital pathology platforms to enhance the ability of pathologist both in training and in practice to share knowledge, lectures, and digital slides. One of her professional goals is to create a solid remote learning environment through the championing of diverse communities and sharing knowledge world-wide.

Dr. Salama is an author of the recent publication, "Ace the Boards: Cytopathology" (see book cover below). This is a first addition of a comprehensive collection of up-to-date classification system, cytomorphology, and high-yield facts in a bulleted format, with more than 650 high-definition cytology pictures. This book provides trainees and pathologists at various levels with well-illustrated, concise, and easy to read cytopathology content.



Other publications from our department since the last POG include:

Geno KA, Nerenz RD. (2022) Evaluating thyroid function in pregnant women. *Crit Rev Clin Lab Sci* online ahead of print 3/16/22. https://pubmed.ncbi.nlm.nih.gov/35293284/

II. Anatomic Pathology

Bone Marrow Practices & Procedures
Dr. Angelica Padilla & Mr. George Sherrod

In reviewing policies related to bone marrow procedures, the pathology department is providing further clarification and guidance as outlined below.

I. Requirements for ordering bone marrow biopsies through pathology:

1. Place order into Cerner, and contact histology (915-521-7791) to schedule the bone marrow procedure.

2. Items required to be supplied by the referring doctor before the procedure:
    A. Input the pathology consultation request into the patient's chart.
    B. Confirm with the patient's nurse that all checklist requirements are complete for the bone marrow procedure.
    C. Put the pathologist's name on the consent form.
    D. Order a CBC if the previous CBC is > 48-hours old.
    E. Pathologist will order the 10 mL of 2% lidocaine and also supply anticoagulant if warranted for the procedure.

3. Items required from patient's nurse before the procedure:
    A. Consent form with Pathologist's name who is performing the BM
    B. Time out Sheet
    C. Bone marrow tray at bedside
    D. Clean towel at bedside
    E. Two pairs of sterile gloves

II. BM procedures are routinely scheduled and performed Mondays – Fridays.

II. Scheduling limitations and considerations:

1. Bone marrow aspirates require live cells < 72 hours from collection time for send-out flow cytometry and cytogenetics. This may impact procedures on Fridays and holidays.
2. FedEx picks-up specimens Monday - Friday at 1400.
3. Overnight fasting is only required when the procedure is performed under conscious sedation.

III. Processing and turn-around times for resulting bone marrow biopsy specimens:

1. An aspirate aliquot is sent to the reference lab on procedure day if sample is obtained by 1330.
2. Samples must be collected by 1330 on Fridays because they are not picked up on weekend.
3. Flow cytometry and cytogenetic results are typically received 2-4 business days from procedure.
4. Bone marrow core biopsies are processed by UMC pathology and requires fixation (2 hours), decalcification (2 hours), and overnight instrument processing starting at 1630 Monday - Friday.
5. The pathologist receives slides (H&E stains, iron stain, and peripheral smears) the following business day at 0900.
6. While preliminary (i.e., verbal) information may be provided for some cases in one day, complete turn-around-times can vary 3 -5 days, depending on cut-off times, as well as ordering and interpreting follow-on testing.

For more information, contact Dr. Angelica Padilla: 915 996-4956 or Mr. George Sherrod: 915-521-7791

IIIA. Clinical Pathology: Transfusion Medicine/Coagulation

Anemia Power Plan
Dr. Jesse Qiao and Mr. Bradford Ray

As we emerge from a restrictive pandemic that took millions of lives, blood bank and transfusion medicine services were challenged. Throughout these challenges, the World Health Organization

has reinforced the importance of implementing Patient Blood Management (PBM) procedures.

Creating awareness of available anemia correction medications that work with the patient's endogenous system produces a significant cost-effective improvement over transfusion and improves clinical outcomes.

- Areas realizing these benefits include reduced length of stay, fewer infections, less surgical blood loss, and better coagulation management.

Taken together, correcting anemia through PBM represents a significant but preventable greatly underestimated public health and health-economic burden.

Many countries are limited on an available blood supply and therefore need options to correct Iron Deficiency Anemia (IDA), which affects about 1.5 billion people worldwide.

UMC El Paso implemented an inpatient Anemia Power Plan (APP) to assist in correcting anemia without the use of blood products. This was quite effective with a severely restricted blood supply. We have successfully utilized the APP almost 500 times. Most patients did not require transfusion, but those who did, required much less blood.

Our plan is to educate departments and further implement the use of the APP. In addition, we are proposing an Outpatient Anemia Center whose goal will be focused on pre-surgical patient management in the context of the following:

- Determine degree of anemia before procedures (e.g., cardiac, orthopedic, urology, colorectal, oncologic or a delivery).
- Outpatient setting benefits can also be realized in those with anemia of chronic disease. (1-7)

Anemia is an under-recognized disease state that can be corrected with significant, positive outcomes that include:

- Improved quality of life, reduced morbidity/morality, reduction in stroke and acute myocardial infarction, and reduced incidence of complications due to transfusion.
- Secondary benefits can also be realized in work productivity and reduced dependence on community blood supply.

With all other standard-of-care being equal, reduced exposure to blood products almost always results in better outcomes, and that is proof-of-concept for PBM.

- The combined goal is to take a patient-centered approach while reducing the number of units transfused.
- Pre-autologous donations (blood previously donated from the patient) can be used, but best-practices recommend treating low Hg prior to surgeries to avoid transfusions.
- Our goal is to have the overall framework available to address IDA, blood loss, anemia, and coagulopathy.

The following is a list of Q&A for your consideration when discussing if anemia is a disease or a symptom in the context of management purposes.

1. What are the adverse effects of unnecessary pRBC transfusions?

- Volume overload (TACO)
- Delayed hemolysis (if antibody present)
- Immunomodulation (suppression of patient immune system → adverse outcomes)

2. What are the components of the inpatient transfusion-free anemia therapy (UMC Anemia PowerPlan)?

- IV Iron, one course (UMC: Iron Dextran, 1,000 mg total)
- Daily essentials:
    - Cyanocobalamin (Vit B_{12}), 1000 mcg
    - Folic acid, 1mg
    - Ascorbic acid (Vitamin C), 500 mg
- Erythropoietin (EPO) (see number 3)

3. When is EPO permissible or contraindicated?

- Permissible:
  - Pre-treatment hemoglobin <9.0 g/dL
  - Renal disease where EPO production is impaired (lower dose likely needed, consult nephrology)
- Contraindications:
  - Certain hematological malignancies (consult with hematology)

4. When should I consider placing my patient on the Anemia PowerPlan?

- When the patient is stabilized after acute resuscitation
- When hemoglobin levels are down-trending
- Clinical or laboratory signs of iron deficiency (low serum iron, low UIBC, low Ret-He, low MCHC <28)

5. How should I access the Anemia PowerPlan for UMC inpatients?

- In Cerner, under Orders → PowerPlans → HOSP-Transfusion Free Anemia Management → select the corresponding order set with patient's current hemoglobin level (<5 g/dL, 5-7 g/dL, 7-9 g/dL)
- Boxes will NOT be checked automatically. Please remember to checkbox all daily essentials (Vitamin B12, folate, Vitamin C).

6. What is the expected time to see an increase in hemoglobin levels by 1 g/dL?

- 1 unit of pRBC transfusion: 1 hour
- IV Iron + daily essentials + EPO: 2-3 days
- IV Iron + daily essentials w/o EPO: 3-4 days

7. What if I do not see an appropriate expected rise in Hgb?

- Verify that Vitamin B12, folate, and Vitamin C have been given daily
- Consider addition of erythropoietin
- Patients may be in a "compensated state" - lack of anemia treatment may lead to decreased Hgb → pRBC transfusions.

8. Should I be concerned about increased rates of infection with IV Iron?

- This should not be the sole determinant not to use IV iron.
- There is a theoretical risk to bacterial infection (increased ferritin may promote bacterial growth); however there is no consensus data to demonstrate a cause-effect between IV iron and infection/sepsis.
- The alternative, pRBC transfusion, is also associated with increased risk of sepsis and adverse outcomes by immunomodulation (suppression of host immune system).

9. Should I be concerned about iron overload or anaphylactic reactions?

- To avoid anaphylaxis, administer a 25 mg test dose prior to completion of the full dose (975 mg). Benadryl may be used for mild allergic reactions.
- Check iron studies before each treatment: Low serum iron, low UIBC, or low Ret-He are all compatible with iron deficiency.
- Increased serum ferritin alone is not specific and often indicates inflammatory state rather than iron overload.

10. What should I know about treating anemia in the preoperative and outpatient settings?

- Correction of pre-operative anemia decreases intraoperative and post-operative transfusion burden, with potential to reduce length of stay and improve outcomes.

- Appropriate treatment of anemia → optimizing patient's own blood → may improve patient quality of life, especially patients with cardiopulmonary risk factors.

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Direct questions to Dr. Jesse Qiao at jesse.qiao@ttuhsc.edu

III B. Clinical Microbiology

Eosinophilia and *Strongyloiedes*? Then test before you suppress!

Dr. K. Aaron Geno

Case:

A 76-year old male presented to the ED with diarrhea and diffuse abdominal pain. Oral prednisone was started six weeks prior to his ED visit. The patient is from Guyana and last visited 10 years ago.

IV hydration and antibiotics were administered on suspicion of bacterial gastroenteritis. Stool cultures were later negative. The patient entered hypercapnic respiratory failure during admission. Bi-level positive airway pressure was initiated. While his gas exchange improved, he continued to deteriorate.

Strongyloides stercoralis larvae were seen on ova and parasite examination of stool.

- Diagnosis of *Strongyloides* hyperinfection syndrome made and ivermectin therapy initiated
- Patient continued to deteriorate and died three days later
- Review of the patient history shows persistent eosinophilia even prior to initiation of prednisone and was attributed to chronic NSAID use.

There was no investigation of potential parasitic infection conducted prior to immunosuppression.

Case condensed from PMID 26348071.

Strongyloides stercoralis

- Helminthic worm and a human parasite
- Life cycle shares features with other common helminthic infections, including the soil-transmitted helminths:
    - *Ascaris lumbricoides*, hookworm, and whipworm
    - *Unlike other helminths, Strongyloides* can reproduce within humans.

Strongyloides is found on every continent but Antarctica and is most often associated with warm, humid climates. In the United States, infection is rare overall, but studies of immigrant populations have found variable rates of infection, with some approaching 50%.

Strongyloides enters the body through direct penetration of intact skin. Unsurprisingly, walking barefoot, especially in locations with poor sanitation and likely fecal contamination of the soil, greatly enhances the risk of *Strongyloides* infection.

See Fig 1 for Strongyloides' lifecycle.

- Asexual reproduction occurs in intestine.
- Newly hatched larvae continue lifecycles in the body or shed during defecation.
- *Strongyloides* can mature and sexual reproduction can continue a free-living lifecycle.
- The mature parasites are capable of invading a new host (Fig. 2)

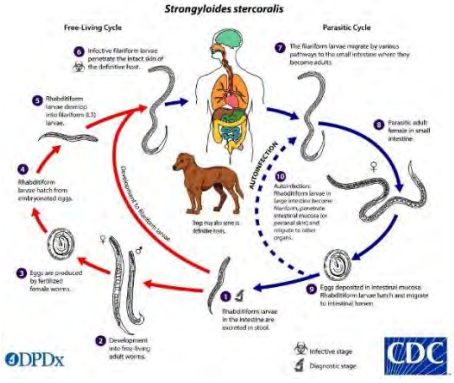

Fig. 1.

A red rash may be present where the worm invaded the skin, and recurrent serpiginous rashes

may occur as larvae migrate beneath the skin, sometimes with undetectable movement.

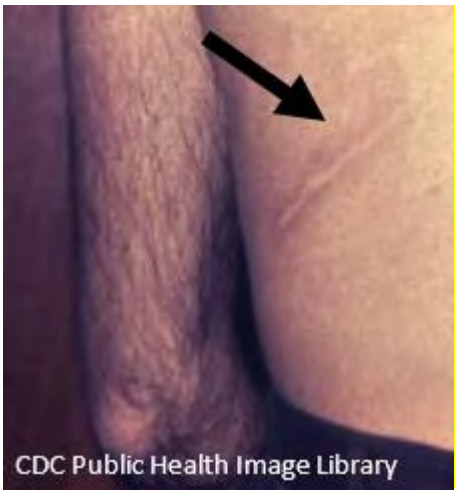

Fig.2.

As illustrated in the case, approximately 67% of cases display eosinophilia, a non-specific finding. While *Strongyloides* infections are often asymptomatic, most symptomatic cases include:

- Gastrointestinal symptoms (e.g., diarrhea or constipation, stomachache, nausea).
- Organ-specific symptoms may occur as the worm throughout the body (e.g., coughing or throat irritation).
- In most cases, infection reaches an equilibrium with host defenses, and patients may remain asymptomatic for years or even decades.
- Chronic infection can lead to immunosuppression.
- In chronic cases, corticosteroids can induce life-threatening hyper-infection syndrome.
- The hallmark of hyper-infection syndrome is a rapid increase in organism burden.
- Small bowel obstruction may result in perforation.
- Disseminating larvae may also infiltrate vital organs, carrying potentially pathogenic intestinal bacteria to other body sites.

In our unique border population, it may be prudent to screen eosinophilic patients for a *Strongyloides* infection prior to initiating immunosuppressive therapy.

- Screening for *Strongyloides* infection is available by serologic testing for antibodies to *Strongyloides* as a reference laboratory send-out test.
- Interpretation of a positive result must consider patient history, as there is significant cross-reactivity to antibodies against other helminthic worms in these assays.

Resources:
https://www.cdc.gov/parasites/strongyloides/
https://www.uptodate.com/contents/strongyloidiasis

III C. Clinical Pathology: Laboratory Stewardship

***Avoiding pitfalls associated with the Vowels of Lab Medicine: AEIOU…and always 'Why'**
Dr. Jude Abadie

More than two decades ago, the Institute of Medicine defined "lab stewardship" as a management tool to guide clinical decisions through care that is respectful of and responsible to patient preferences, values, and needs (1). Interpretation of this definition evolved to include patient-focused considerations, such as access to the correct lab tests at a time during care that addresses the most salient clinical requirements.

- During the COVID-19 pandemic, U.S. patients experienced unprecedented access to lab testing that was made possible through smart-phone assisted conveniences of telemedicine and self/mobile-collection of various sample types.
- This was an inflection point in access-to-care that served clinical needs and mitigated infection exposures (2).
- However, increased access to testing without concordant clinical laboratory management (CLM) guidance will distract from patient-focused care.

Test reports with corresponding reference ranges are equally important as ordering correct tests.

- For example, a reference range (RR) for some assays affected by third-spacing of fluids may differ between a non-pregnant and a pregnant female.

- To further illustrate this point, consider that the RR indicates test values corresponding to studies performed in a cohort of "normal" individuals with an absence of clinical conditions, including medications that may affect the test results.
- In the case of establishing an INR range for patients taking warfarin, for instance, such confounding variables would invalidate a RR study for a normal population.
- Therefore, an INR reference range of 2.0–3.0s is not normal because it's the range for individuals on standard-intensity warfarin therapy. The INR RR for individuals on high-intensity warfarin therapy may be closer to 2.5–3.5s, and 0.9–1.1s for an apparently healthy population not taking anticoagulants.

In addition to maintaining clinical actionable lab reports and robust lab stewardship, CLM teams and individual providers must continuously ensure the right tests are ordered at the right time for the right patients. Furthermore, CLM teams must ensure that laboratory stewardship is not devalued through testing described as: **A**berrant, **E**xcessive, **I**ncorrect, **O**bsolete, and/or **U**seless (AEIOU).

To be successful in providing superior clinical services and to mitigate patient harm, lab stewardship operations must proactively target test-use through CLM that focuses on patient-centered guidance and directs efforts to eliminate "AEIOU" testing and asks 'Why' the test is being ordered.

If the "why" cannot be answered, then ask, "What alternate course of action should be taken?" The illustrations below demonstrate the "AEIOU and always Why" in navigating lab stewardship operations.

A = Aberrant: Aberrant ordering is usually associated with high-volume or costly genetic testing in patients with low pretest probabilities (LPP).

- For example, for a patient being tested for hereditary hemochromatosis, ordering mutation panels for *HFE* gene variants is usually a common reactionary practice if iron studies, hemoglobin, and liver enzymes are minimally abnormal.
- Instead of rushing to genetic testing, transferrin saturation, a test usually performed in the hospital lab, should be ordered first to assess iron overload.
- Genetic testing should be performed only if an elevated transferrin saturation can't be attributed to a reason for iron overload (e.g., chronic transfusion).

CLM teams could also use a **S.O.F.T** approach when deciding to approve requests for expensive genetic testing. This approach explores:

S: Screening options (alternate testing)
O: potential **O**utcomes (will management change based on test result)
F: curtailing '**F**ishing' expeditions (i.e., endless testing)
T: evaluating the request in the context of available **T**reatment (3)

Ordering approaches must also be considered in high pretest probability (HPP) cases.

- D-dimer testing is a good example of a test that should not be ordered in patients with a HPP for a venous thromboembolism (VTE).
- This is because the test depends on negative predictive value (based on low pre-test probability [LPP]), which makes its use inappropriate in groups with a high prevalence of VTE.
- Many results would incorrectly rule out VTE in HPP patients. D-dimer testing should be used to rule out VTE in patients with LPP, otherwise patient safety may be compromised.

E = Excessive: Excessive ordering can be due to Fear-Of-Missing-Out (FO-MO).

- Ordering serial cardiac troponin (cTn) based on FO-MO of the peak and/or trough level contradicts American College of Cardiology guidelines.
- Knowing cTn peak or trough levels provides no additional value in assessing acute

myocardial infarctions (AMI) once the rise-and-fall pattern is identified using a high-sensitive (hs) cTn test.

Other FO-MO examples include selecting multi-panel allergy testing that usually provides useless additional information and potentially confusing false-positive results.

- A more patient-focused approach could include using guidelines in the setting of a HPP related to allergen exposure or referral to an allergist.
- FO-MO-induced excessive testing can lead to unwarranted blood draws, incorrect order times, and patient harm, exacerbated in the context of delayed diagnoses.

I = Incorrect: Incorrect testing orders can result from failures to follow or implement processes.

Process failures may occur if a routine parathyroid hormone (PTH) is ordered when the intraoperative (i.o.) PTH is required for a patient undergoing parathyroidectomy.

- Both tests are analytically identical. However, ordering routine PTH for a patient who requires the i.o-PTH is in complete disregard for lab preparation, which is essential for timely testing, reporting i.o-PTH results, having a successful parathyroidectomy, and ensuring patient safety.

Incorrect orders can also be due to misunderstanding of analyte names.

- For example, ordering total testosterone to evaluate testosterone status would not account for free (i.e., active) testosterone.
- Furthermore, for the most accurate and clinically actionable results (e.g., for diagnosing "low-T"), the Endocrine Society recommends that testosterone testing should be performed on samples drawn from patients who are fasting and within 3-hours after waking, but testing is not restricted for patients who are receiving testosterone replacement therapy or androgen deprivation therapy.

Another case in which the analyte name is often confused is vitamin D.

- Total 25-hydroxyvitamin D (25-OHD) levels, the sum of 25-OH-vitamin D2 and 25-OH-vitamin D3, is the appropriate indicator of vitamin D body stores and is available in most clinical labs.
- The most biologically active form, 1,25-di-hydroxy-vitamin D, should not be used to assess vitamin D status because it can vary with calcium status.
- Therefore, measurement of 1,25-di-OHD is not useful in screening nutritional vitamin D deficiency.
- It can be misleading with normal values in patients with potentially severe vitamin D deficiency (4); 25-OHD should be used instead.
- The 1,25-di-OHD is a much more expensive send-out test that measures bioactive vitamin D and is in the differential of hypocalcemia, renal osteodystrophy, or chronic renal failure.
- The expensive 1,25-di-OHD is neither suitable for diagnosis of vitamin D deficiency nor for monitoring supplementation in most patients.

Therefore, the combination of inappropriate testing and increased cost diminishes the quality of care when 1,25-di-OHD is ordered instead of 25-OHD.

To reduce confusion between these tests, orders for 1,25-di-OHD could being changed to "Calcitriol" and restricted to orders from endocrinologists or through a lab approval process.

O = Obsolete: Obsolete tests are often antiquated and have been replaced with tests that are more technically designed to manage care.

- No one would consider ordering a pregnancy test in which hCG in the patient's urine would induce egg production in a frog that received an injection of the patient's urine.

- However, this was a common pregnancy test from the 1940s–1960s, boasting a turn-around time of < 2 days (5).

The bleeding time test (BTT), a "newer" obsolete assay, was/is used to evaluate platelet function and vascular integrity that would be better evaluated using coagulation tests (PT and aPTT, platelet count, and ruling out von-Willebrand's disease).

- If the results of these tests are negative, a platelet function disorder can be investigated with platelet aggregation testing.
- Furthermore, the relationship between bleeding time and the risk of a patient's actually bleeding has not been established and is not supported by the American Society for Clinical Pathology; therefore, the BTT should be removed from lab menus.
- It is highly operator–dependent, lacks reproducibility, and is confounded by technical variables such as incision location, pressure applied, operator experience, and patient factors (e.g., age, gender, diet, hematocrit, skin laxity, medications).

Some cardiac markers have also become obsolete in assessing AMI.

- Cardiac troponin (cTn) has replaced the antiquated lactate dehydrogenase, creatinine kinase-MB (CK-MB), and myoglobin assays (6).
- The American College of Cardiology recommends hs-cTn as the only lab analyte for assessing acute chest pain.

U = Useless: Useless orders can be defined as those tests whose results will not change management and play no part in patient care.

- Ordering against guidelines, such as requesting a PSA on a 95-year-old male, has no clinical utility.

Other cases may not be as obvious.

- For example, there is minimal justification for routine orders of reverse T3 (rT3) in thyroid function assessment.
- Perhaps the main use of rT3 is a prognostic marker of non-thyroidal illness or to monitor patients receiving amiodarone (7).

Another example of a useless order is methylmalonic acid (MMA) to assess Vitamin B12 deficiency.

- Some providers use MMA results to identify a cause of low vitamin B12 levels.
- However, treatment for mild deficiencies has little value because disease progression in severity is rare.
- Furthermore, while elevated MMA can indicate vitamin B12 deficiency, it is not specific, does not implicate vitamin B12 deficiency in elderly patients, and provides no information on severity or likelihood of progression.
- Contributing to the low utility of MMA testing, *HIBCH* gene polymorphisms in people of European ancestry demonstrate elevated MMA levels, irrespective of vitamin B12 status (8).
- Perhaps MMA testing should be reserved for cases of suspected methylmalonic acidemia, a rare cause of devastating intellectual disability.

Summary points to remember

- Lab information computerization can be used to inform providers of appropriate reference ranges, to prevent duplicate orders, and to guide testing based on evidence-based medicine.
- Managing genetic testing approval based on prevalence, pretest probability, and clinical outcome supports laboratory stewardship and patient care.
- A multi-pronged approach, required to maximize value of lab use, must focus on test menus, reduce AEIOU orders, and implement processes to guide all in-house and send-out testing.
- To maintain the right test orders at the right time for the right patient, CLM teams must continuously maintain SOFT approaches in communicating with providers to mitigate AEIOU testing.

Always remember that the most significant errors in lab medicine are those that compromise patient safety due to neglected stewardship when ordering tests and those that lead to failures related to inaction or misinterpretation of the results.

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Testing notice: In consultation with UMC Infection Control and TTUHSC El Paso ED, the COVID-19 Total Antibody and COVID-19 IgG Antibody tests will be discontinued effective 1 July 2022. Clinical utility of these results was limited to a few clinical scenarios early in the pandemic. This utility has further diminished in a setting of both widespread COVID-19 exposure and vaccinations. This test cannot distinguish antibodies elicited from the vaccine vs. those natural infection. Provide patient education and reminders that no currently available test can demonstrate immunity to the SARS-CoV-2 virus. Questions or concerns regarding this change should be directed to Dr. Jude Abadie 915-215-4956.

IV. Closing statement……

As our pathology department continues to become more robust, we look forward to future successes in development of our faculty, building a world-class pathology residency program, advancing our clinical services, and providing uniform excellence in patient care.