An inherited thrombophilia (i.e. gene mutations associated with increased risk of abnormal blood clotting) can have serious and potentially devastating effects on patients and their families. Unfortunately, because testing for this disorder is typically performed only after a clot has formed, up to 7% of the general population has no idea they may be harboring a potentially lethal genetic abnormality. Perhaps if patients had this knowledge, they could make lifestyle changes to lower their risk of forming dangerous blood clots.

Blood clots are typically the result of a disruption to the normal circulatory homeostasis. Having only one associated risk factor is unlikely to cause a clot;
however with the addition of other factors, the normal hemostatic balance can be tipped in favor of clotting. Commonly encountered conditions such as diabetes, cancer, smoking, obesity, lack of exercise, use of contraceptive pills and pregnancy are just some of the well-documented associations which can contribute to clotting. DNA can also play a role. Mutations in the Factor V Leiden (FVL) gene and prothrombin 20210 (PT 20210) genes are the most well-documented hereditary mutations associated with clotting.

FVL mutations are typically heterozygous. When present, the body does not properly shut off the coagulation cascade. This disorder is seen in up to 7% of the general population and has a 5-10 fold increased risk of thrombosis. The PT mutation is also typically heterozygous. This mutation is associated with increased prothrombin in the body which is converted to thrombin resulting in an increased risk of clots. This disorder is seen in up to 3% of the general population and has a 3-11 fold increased risk of thrombosis.

No validated testing guidelines for inherited thrombophilia have been published. In general, testing for hereditary mutations should be considered in patients with an unprovoked clot at an early age, strong family history of clotting, and the formation of clots at an unusual site in the body. In addition, females with first degree relatives with history of clotting are recommended for screening if the use of estrogen (including contraceptive medications) is being considered.

It should be noted, there is an abundance of medical literature which argues against testing for inherited thrombophilia, especially when the result will not change patient management. These peer-reviewed journal articles make well-argued points and have strong supporting data. I would encourage all providers to review the data in the context of a patient’s situation when considering testing.

MercyOne Des Moines Laboratory Molecular Department performs Factor V Leiden and PT 20210 Gene Mutation testing.

Is it asthma, or allergies, or both?

Children and their parents/caregivers may be unaware of the link between allergies and asthma. Up to 90% of children with asthma have allergic sensitizations, but despite being given asthma medications, many have never been tested for allergies.

ImmunoCAP blood allergy testing can help confirm if an underlying allergy is playing a part in a child’s asthma symptoms. Parents may then have the power to take action to help improve their child’s asthma. Reducing exposure to relevant allergic triggers can help improve asthma, reducing symptoms, hospital admissions, asthma medication and missed school days. This can impact children’s lives, allowing them to take part in school activities and family life to the extent they desire.

ImmunoCAP blood allergy testing is used to help confirm potential allergies to a wide range of Aeroallergens associated with asthma, including:

- House dust mites
- Cat dander
- Dog dander
- Molds
- Pollens (grasses, trees or weeds)
- Mouse urine
- Cockroach

To learn more about ImmunoCAP blood allergy testing, contact MercyOne Des Moines Laboratory.

In general, testing for hereditary mutations should be considered in patients with an unprovoked clot at an early age, strong family history of clotting, and the formation of clots at an unusual site in the body.
Recently there have been questions about the test methods for detection and test-of-cure for Chlamydia trachomatis. According to the CDC, test-of-cure to detect therapeutic failure (i.e., repeat testing 3–4 weeks after completing therapy) is not advised for persons treated with the recommended or alternative regimens, unless therapeutic adherence is in question, symptoms persist or reinfection is suspected. Moreover, the use of chlamydial NAATs [Nucleic Acid Amplification Tests] at <3 weeks after completion of therapy is not recommended because the continued presence of nonviable organisms can lead to false-positive results.\(^1\)

There are two methods available through MercyOne Des Moines Laboratory for Chlamydia trachomatis testing. Simply, Chlamydia DNA testing is used for rapid detection and Chlamydia culture is used for post-treatment test of cure.

### 1. Chlamydia DNA testing

a. Very sensitive: can be used to quickly detect Chlamydia trachomatis (CT) DNA in patient samples

i. Collect female genital swab or urine using Roche Cobas collection kit

ii. Collect male urine using Roche Cobas collection kit (male swabs are not acceptable for detection on the Cobas platform).

iii. Order “CT DNA” or “CTNG DNA” (if Neisseria gonorrhea detection is also desired) test. Turn-around time for the Roche Cobas test is typically less than 48 hours after receipt in lab.

iv. If sample is not from a genital source (i.e. throat, rectal, conjunctival, etc.) or if the specimen is a male swab, collect using a Hologic Aptima collection kit and order a miscellaneous send-out test and comment that the sample is for Chlamydia DNA testing. Turn-around time is three days after receipt at reference lab.

b. Test detects any CT DNA, whether from viable or non-viable organisms

### 2. Chlamydia culture

a. Detects viable organisms to verify treatment efficacy

i. Collect swab from any source and place in viral transport medium (Pink liquid in red-topped tube)

ii. Order a miscellaneous send-out test and comment that specimen is for Chlamydia culture

b. Turn-around time is three to four days after receipt at reference lab.

Blood Culture Contamination Rates: A major quality goal achieved in April

Blood cultures are a critical tool for establishing the diagnosis of bloodstream infections and are useful in directing appropriate antibiotic therapy. Contamination of blood cultures with skin flora, however, can create a significant problem in the evaluation and management of patients. Because of the life-threatening nature of sepsis, a positive blood culture must be taken seriously and acted upon immediately. If it is later discovered that this was a false positive result due to contamination, it may have resulted in unnecessary antibiotic use, additional diagnostic procedures and laboratory tests, and prolonged hospital stays. It is estimated the costs associated with contaminated blood cultures to be anywhere from $3,000 to $6,000 per event.

The problem of contaminated blood cultures has been recognized as an issue for decades. MercyOne Laboratory has monitored this issue for many years and has continually strived to reduce the contamination rate from all areas. As the following graphs show, as our improvement efforts yielded positive results, we would challenge our staff with new goals that would help drive continued improvement.

In April, our overall contamination rate achieved an all-time low of 2.0%. We want to recognize staff from all patient care areas for OWNING IT and IMPROVING DAILY by focusing on proper blood culture collection techniques and helping us reach our collective goal of 2.0% contaminated blood cultures!

<table>
<thead>
<tr>
<th>Facility</th>
<th>Type of Draw</th>
<th>Number Contaminated</th>
<th>Total Number Drawn</th>
<th>% Contaminated</th>
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<tbody>
<tr>
<td>MercyOne Des Moines</td>
<td>Phlebotomy Drawn</td>
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<td></td>
<td>Nursing Drawn</td>
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<tr>
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<tr>
<td>Hospital Wide (Excludes Outreach)</td>
<td>Total</td>
<td>59</td>
<td>1915</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

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