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## All Elevations Are True Elevations with High-Sensitivity Troponin T

### Announcer:

Welcome to ReachMD. This medical industry feature, titled “All Elevations Are True Elevations with High-Sensitivity Troponin T” is sponsored by Roche Diagnostics.

Here’s your host Dr. Jennifer Caudle.

### Dr. Caudle:

While high-sensitive troponin provides the ability to detect smaller elevations, it doesn’t always correlate to a higher rate of false-positives for myocardial infarction. All elevations of troponin are true elevations and are indicative of myocardial injury. In fact, examining the rise and fall of high-sensitive troponin can enable earlier and more confident decision-making with a similar rate of cardiology referrals when compared to conventional troponin. So, how are organizations adopting and educating clinicians on these assays, like Gen 5 troponin T?

This is ReachMD, and I’m your host, Dr. Jennifer Caudle. In the third and final episode of this three-part series, we’ll be discussing the adoption and impact of Gen 5 troponin T from the cardiology perspective. Here to share her thoughts with us is Dr. Lori Daniels, Director of the Cardiovascular Intensive Care Unit at the University of California, San Diego. Dr. Daniels, welcome to the program.

### Dr. Daniels:

Thank you very much for having me. I’m excited to be a part of this program.

### Dr. Caudle:

Absolutely. Well, we’re excited that you’re a part of it as well. So, let’s start by discussing why your organization decided to adopt Gen 5 troponin T. What considerations impacted that decision?

### Dr. Daniels:

We started thinking about adopting Gen 5 troponin T quite a while ago. We were one of the first institutions in the country to do it, and the reason is that, number one, we know it’s a better test, and if there’s a test that gives you more information and is more accurate, why not do it? Certainly, there’s a learning curve, but in our view, it’s better to have more information than less information as long as it’s accurate, and start to get time for our clinicians to learn how to use it and become experts in it. It has been around for almost ten years in Europe and in Asia, and it is really time to get it onboard here in the United States. It’s a better test. It avoids missing small myocardial infarctions. It allows for earlier diagnosis of myocardial infarction as well as earlier and safer rule-out when you use it in conjunction with all the clinical data. So that helps us get faster turnaround time and patient satisfaction, and so bringing on Gen 5 troponin seemed like a really good idea to get this going.

### Dr. Caudle:

So, what did your role look like in the implementation process?

### Dr. Daniels:

So, I was quite involved in the implementation process from the very beginning. Shortly after Gen 5 troponin got approved by the FDA here in the United States, I had a conversation with one of our lab directors, and we both talked and said, “Is this something we’re interested in adopting early on?” Both of us were for the reasons I outlined a moment ago, and so the next step was we got together, and we brought in not only the lab and cardiology but some representation from the emergency department and the hospitalists as well. So, initially what we did was we planned out a three-phase implementation process. We didn’t want to just spring this on people without

any background. So in phase one, what we decided to do was any time troponin was ordered, we would measure both troponin T Gen 5 and the contemporary Gen 4, but we would only report the contemporary Gen 4. We were collecting the data to make sure we were comfortable with the assay and that we were getting repeatedly reliable results and also to do our own research after the fact and looking at individual cases.

In the second phase, any time troponin was ordered, we measured both and we reported both, and this was an important phase, I think, for us. It gave clinicians a heads up, "Hey, a new test is coming. Here's your chance to see it side-by-side with the old test, wrap your brain around what the new numbers look like because there's a unit change, the numbers look bigger and kind of get familiar with how it's going to work before the old one disappears."

Then phase three was go-live where we were fully on board with Gen 5, and the old assay dropped off. So, having these three phases, I think, helped with the education process, helped with our quality control, and helped us understand what some of the differences were and reassure us. Also, there was a big component of education prior to implementation. We wanted to educate, you know, not just cardiology as I mentioned and not just the emergency department but nurses, house staff, internists, everyone who was going to be using this. We tried to give an opportunity at grand rounds, conferences and things like that as well as e-mails and handouts. Developing a protocol was part of that process as well.

**Dr. Caudle:**

Excellent, if you could just talk a little more about go-live what was your involvement at go-live?

**Dr. Daniels:**

Yeah, so I'm kind of known around the hospital as the point person on the clinical side for biomarkers, especially within cardiology and internal medicine and within the emergency department, so I made it quite clear that when we went live, if anyone had questions or concerns, they could page me. I asked them if there were cases they found that they were uncomfortable with or that didn't make sense, to collect them, and let's go over them together. It actually helped me gather a bunch of interesting cases and help with the educational component so that when I go on and give talks, I have examples to show. "Here's how you use it. Here's how it helps. Here's what you need to be aware of." One funny call I got from one of our cardiology fellows, because I was keeping a close eye on if they were getting way more consults than they used to, only one fellow noted that to me and he even said it was really only for the first week, but one of the calls he got during that first week was for someone where the emergency department physician called him and said, "Yeah, normally I wouldn't call a cardiology consult on this, but I've never seen a troponin value this high," and the value was in the normal range, but it was 20. So, that was obviously a failure in the education process that we were able to laugh about later, but those calls disappeared quickly.

**Dr. Caudle:**

Overall would you say the adoption of Gen 5 troponin T impacted your practice as a cardiologist Dr. Daniels, and if so, how?

**Dr. Daniels:**

So, one of the big concerns around the country and even locally is concern from cardiologists before adopting Gen 5 troponin. Cardiologists were concerned that this was going to lead to way more consults, way more calls from the emergency department in the middle of the night. That's the big fear, right? Because as a test gets more sensitive, they're worried that they're going to start seeing these elevations that may or may not be clinically meaningful. So, that worry was there beforehand. I have to say, overall, I don't think this has impacted my practice negatively at all. I think there was a learning curve early on, and I've heard anecdotal stories from my colleagues of a few consults that they got that they probably wouldn't have gotten otherwise, but I think the big answer is that it hasn't changed things very much. We were using the fourth-generation troponin prior to this, which is quite sensitive in and of itself, but anyone using a contemporary troponin assay right now who hasn't switched yet, with these contemporary assays already we are dealing with issues where troponins are elevated and it's not due to an acute thrombotic event. We're already dealing with that. We already know, and our colleagues already know that there's such a thing as type 2 or demand MIs, and not every troponin elevation, you know, is a Cath lab emergency. This is not a new concept to us even with the contemporary assays. So, it's not like people don't know how to deal with elevations. The clinical picture is always important, and I found that, as a cardiologist, it hasn't negatively affected my practice beyond the first week where we were trying to train everyone and get people onboard.

I think in the positive respect, we're having less patients waiting overnight to get rule-outs. We're able to rule people out in several hours instead of 6, 12, 18 hours. So, patients definitely like that better, the emergency department loves that better, and we have some preliminary data that we may even be getting less of those consults now because of our rule-out protocol. There's such reassurance when someone has undetectable high-sensitivity or Gen 5 troponin T the emergency department often now feels comfortable sending some of those patients out without waiting for cardiology or without having to get a stress test on everyone in the right clinical scenario. So, I think it's given other folks confidence in the rule-outs, it's made it quicker, and, in general, I have to say it's been a positive

experience.

**Dr. Caudle:**

For those of you who are just joining us, this is ReachMD, I'm your host, Dr. Jennifer Caudle. Today, I'm speaking with Dr. Lori Daniels about high-sensitive troponin T. So, Dr. Daniels, we spoke a bit earlier about the adoption of this assay at the University of California, San Diego, but now let's transition to its impact post-implementation. What would you consider to be the biggest benefit of adopting Gen 5 troponin T?

**Dr. Daniels:**

Yeah, for sure I think the biggest benefit of adopting the Gen 5 troponin is the quicker triage time. So, previously we used the contemporary fourth-generation troponin T assay, and our standard protocol at that point was to get a baseline troponin and repeat it in about six hours. Sometimes you'd have to repeat another one after that. We're cutting that time down substantially now. So, we're getting much quicker triage time and additionally we're getting more certainty with the lower-risk patients. It's way more reassuring to get a value that's undetectable when it's a high-sensitivity assay compared to when it's a contemporary assay. So, low clinical risk patients who also have undetectable Gen 5 troponins, we're comfortable sending a lot of those out either for follow-up with their primary care physician or an outpatient stress test, whereas in the past a lot of those we would keep overnight or even over the weekend awaiting further testing.

**Dr. Caudle:**

What kinds of impacts, would you say Gen 5 troponin T had on UCSD as a whole?

**Dr. Daniels:**

Yeah, so we're looking at the data right now, and we have been collecting data on this for the past year. We're not totally finished yet, but initially it does look like we've been seeing results similar to what they saw in Europe, which is we have not seen an uptick in normal stress tests and normal angiograms. A lot of people were worried about that. They were worried that, "Oh, you're going to rule in all these people with MIs that don't really have them, and you're going to start cathing people, and they're going to be normal angiograms." There was great data out of Europe from the Twerenbold study that that didn't happen. So, we're starting to look at that same exact data now here at UCSD, and so far, we're seeing the exact same thing. We're not having an uptick in normal stress tests or normal cath. If anything, believe it or not, the preliminary data suggests that it might be the opposite. We're having perhaps less normal testing, which is reassuring. So, faster turnaround time possibly in the emergency department, and then the impact on people waiting around and less unnecessary testing.

**Dr. Caudle:**

Finally, Dr. Daniels, do you have any final takeaways for cardiologists or institutions considering converting to high-sensitive troponin?

**Dr. Daniels:**

I think for institutions who are considering converting and for cardiologists, I think it's definitely important to work with a team. This isn't something I would recommend that any one group does alone, whether it's the lab or the cardiology department. It affects many, many different groups of people in the hospital. So, I think it's quite helpful to have involvement from the lab, from cardiology, from the emergency department. You know, it affects hospitalists to some degree because they're ordering and interpreting these tests. Education becomes a critical component. It's important to kind of have a plan. Figure out how you're going to get the word out, how you're going to teach people about the new numbers because the units change. They look different, and that can be scary at first, but it's really quite easy once people are familiar with it. So, as long as the education is in place and all groups are involved and take some degree of ownership of the plan, I think the chances for success are a lot higher.

**Dr. Caudle:**

Those are some really great pieces of advice. And with that last thought in mind, I want to thank my guest, Dr. Lori Daniels, for helping us understand the adoption and impact of Gen 5 troponin T from a cardiology perspective. Dr. Daniels, it was great speaking to you today.

**Dr. Daniels:**

Thank you for having me, Dr. Caudle. I really enjoyed our discussion.

**Announcer:**

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