1
00:00:10.150 --> 00:00:19.690
Clary Mole: Hello, and welcome to the EMS focus Webinar Series, hosted by the NHTSA's Office of Emergency Medical Services. My name is Clary, and I'll be the moderator for today's session.

2
00:00:20.740 --> 00:00:37.960
Clary Mole: The Webinar Series is designed to provide useful information for EMS stakeholder community about federal, state and local participation in planning design and advancement of EMS. It includes real experiences from leaders utilizing these processes throughout our country.

3
00:00:38.230 --> 00:00:45.049
Clary Mole: In today's session we will learn about the impact prehospital blood transfusion programs have on EMS agencies

4
00:00:45.570 --> 00:00:57.230
Clary Mole: and how EMS agencies can partner up with blood banks to host a blood drive during EMS week this year, which occurs during May 18th to the 24th.

5
00:00:58.190 --> 00:01:13.150
Clary Mole: This session will highlight successful efforts from Colorado and Virginia, including real world insight on how to start a program, work with local partners and use national EMS week as a platform to engage your community.

6
00:01:13.420 --> 00:01:31.019
Clary Mole: Today's webinar is being recorded, and it will be posted on www.ems.gov for more information about the Office of EMS, our focus webinars, and to access the archive recordings, please visit www.ems.gov.

7
00:01:31.110 --> 00:01:50.429
Clary Mole: If you have questions or feedback for our office with regard to anything, including the webinars. You can send that feedback to NHTSA.EMS@dot.gov, that's NHTSA.EMS@dot.gov

8
00:01:51.120 --> 00:01:52.689
Clary Mole: period.gov.

9
00:01:54.420 --> 00:01:57.608
Clary Mole: Before we begin. Let me cover

10
00:01:58.430 --> 00:02:03.989
Clary Mole: I'm supposed to be advancing slides. Sorry about that. Before we begin. Let me

11
00:02:04.160 --> 00:02:16.229
Clary Mole: cover a few housekeeping items. Please use the Q&A but button on the zoom control panel to submit your questions throughout the session. We'll address them in the last 15 min of the webinar.

12
00:02:16.330 --> 00:02:39.440
Clary Mole: Feel free to submit those questions as they come to you. We'll be in the background organizing those for the Q and A portion, for when it begins again, when the last 15 min of the webinar closed, captioning and all closed captioning is also available. Simply click the show captions button at any time to enable this feature.

13
00:02:41.570 --> 00:02:59.350
Clary Mole: Next, I'd like to take a moment to share the mission of NHTSA's Office of EMS. Our office supports the improvement of patient care in the out-of-hospital setting nationwide by first bringing together data and experts to identify critical issues in the EMS field.

14
00:02:59.480 --> 00:03:13.240
Clary Mole: Secondly, by collaborating with partners, including federal agencies and national organizations, to address those issues. And thirdly, by promoting awareness and education for the best practices and evidence-based guidelines.

15
00:03:14.980 --> 00:03:21.160
Clary Mole: One of the ways we achieve our mission is by providing resources to help EMS leaders and clinicians.

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00:03:21.470 --> 00:03:33.700
Clary Mole: Our resource hub on www.ems.gov makes it simple to browse, search, or download a wide variety of documents,

17

00:03:34.090 --> 00:03:42.650
Clary Mole: reports, and guidelines. These resources, created by NHTSA's Office of EMS and its partners, help advance EMS practices.

18
00:03:42.870 --> 00:03:49.630
Clary Mole: To access these records, you can scan the QR code on the slide or visit the home page at

19
00:03:49.750 --> 00:03:51.320
Clary Mole: ems.gov.

20
00:03:54.210 --> 00:03:59.969
Clary Mole: just giving you a few extra seconds to get that QR code if you're trying to pull up your phone. Okay, that's enough.

21
00:04:02.160 --> 00:04:12.989
Clary Mole: Now, it's time to introduce our speakers for today's webinar. We're honored to have Dr. Angelidis and David Long with us. They bring a wealth of knowledge and experience to our discussion.

22
00:04:13.150 --> 00:04:28.279
Clary Mole: Before I turn over the mic to our first speaker. I do want to give you a brief overview of prehospital blood transfusion, and why it's important. You already know about post-crash care and the fact that it's 1 of the 5 core elements of the safe system approach

23
00:04:28.520 --> 00:04:36.710
Clary Mole: 9-1-1 telecommunicators and EMS clinicians critical to successful crash response.

24
00:04:36.810 --> 00:04:47.840
Clary Mole: The right care at the right time prevents injuries from becoming fatal. The safe system approach from avoiding crashes to avoiding fatalities

25
00:04:48.240 --> 00:04:51.800
Clary Mole: crashes will be inevitable

26

00:04:52.140 --> 00:05:03.050
Clary Mole: but fatalities can be minimized through a secondary prevention mindset. Engineering behavioral and clinical interventions combined can help reduce total

27
00:05:03.290 --> 00:05:09.089
Clary Mole: traffic deaths. Prehospital blood transfusion is a powerful clinical tool in this effort.

28
00:05:11.790 --> 00:05:24.869
Clary Mole: we know that saving more lives requires a seamless system of care. Starting with our 9-1-1 and bystander care, emergency response, then efficient and selective transport to the right level of care.

29
00:05:25.620 --> 00:05:27.689
Clary Mole: Our optimized system means that

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00:05:27.880 --> 00:05:42.090
Clary Mole: timely on scene care should include delivery of blood to crash victims and the prehospital setting or on scene, which is what we're here to talk to you about today.

31
00:05:44.390 --> 00:05:58.249
Clary Mole: Tens of thousands of people die in motor vehicle crashes every year. In 2022, that meant about 42,000 people lost their lives. But did you know that 40% were still alive when first responders arrived?

32
00:05:58.530 --> 00:06:02.959
Clary Mole: Each of those individuals represent an opportunity to save a life.

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00:06:04.500 --> 00:06:13.770
Clary Mole: Crashes often result in trauma, trauma injuries or traumatic injuries that result in bleeding both internal and external.

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00:06:14.930 --> 00:06:23.130
Clary Mole: Blood loss happens quickly, and people can die in as little as 5 minutes. That means that they're not able to survive,

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00:06:23.460 --> 00:06:27.539
Clary Mole: to arrive to the hospital, to receive oxygenated blood.

36
00:06:31.470 --> 00:06:45.649
Clary Mole: Supplying EMS clinicians with whole blood on ambulances, and teaching them how and when to deliver it, is one of the critical countermeasures. One, we think that is the most significant impact in reducing deaths on our roadways.

37
00:06:47.250 --> 00:06:52.449
Clary Mole: In 2022, only 751 crash victims received prehospital

38
00:06:52.580 --> 00:06:57.000
Clary Mole: blood, and only 40 children under the ages of 14

39
00:06:57.130 --> 00:07:06.010
Clary Mole: received a transfusion. Yet physicians and surgeons still, excuse me, say that prehospital blood programs could potentially save lives from

40
00:07:06.110 --> 00:07:07.429
Clary Mole: highway crashes

41
00:07:07.840 --> 00:07:27.790
Clary Mole: per year, and all of EMS….Let me start that sentence over again, because I'm sure you didn't understand it, because I didn't. Yet physicians and surgeons say that prehospital blood programs could potentially save thousands of lives from highway safety deaths per year. If all EMS agencies could deliver blood in the field.

42
00:07:27.840 --> 00:07:41.339
Clary Mole: The science is so compelling that in 2023 a joint position statement was issued by the American College of Surgeons, the American College of Emergency Physicians, and the National Association of EMS Physicians to support it.

43
00:07:41.600 --> 00:07:49.310
Clary Mole: EMS clinicians are already coming together to advance the use of prehospital blood transfusion in the field and at the scene.

44
00:07:49.970 --> 00:08:01.140
Clary Mole: Though the truth is only about 4% of US counties have at least one agency who can deliver prehospital blood, though that number is slowly growing all the time.

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00:08:07.030 --> 00:08:20.650
Clary Mole: Today we not only want to focus on a life-saving impact of prehospital blood transfusions, we also want to encourage EMS agencies across the week to host a blood drive in their community during national EMS Week 2025.

46
00:08:21.870 --> 00:08:23.770
Clary Mole: We would like to first

47
00:08:24.180 --> 00:08:31.738
Clary Mole: at this point, we also just want to let you know we put a QR code on the screen. If that will take you to

48
00:08:32.380 --> 00:08:46.729
Clary Mole: more resources for EMS week, and I believe there's something there for you to learn more about hosting a blood drive. So now let's go ahead and welcome our first speaker, Dr. Angelidis, who will then be followed by

49
00:08:47.550 --> 00:08:48.970
Clary Mole: David Long.

50
00:08:49.940 --> 00:08:51.250
Clary Mole: Dr. Angelidis.

51
00:08:51.400 --> 00:09:14.660
Dr. Matthew Angelidis: Thank you so much Clary. Hi guys, good morning. My name is Matt Angelidis. I'm an emergency medicine physician in Colorado Springs, and an EMS physician Medical Director for Colorado Springs Fire and AMR. And I am really pumped to talk to you guys today about what I consider to be the standard of care, which is, how do you store, transport and transfuse blood products in your EMS system?

52
00:09:14.890 --> 00:09:28.949

Dr. Matthew Angelidis: We're going to walk through a little bit of the science background one more time, but I want to start with a story. I think that this drives the messaging home, and this is why you and your EMS teams, your healthcare systems, and your blood suppliers should be partnering to

53
00:09:28.950 --> 00:09:53.040
Dr. Matthew Angelidis: put blood on fire trucks and ambulances. This young lady, Chelsea Tuft and her baby, baby Rosie, were some of the first recipients of EMS delivered blood transfusions in Colorado Springs. Back in August of last year, she went into labor in her kitchen in the early evening, while preparing dinner for her 2 kids and husband. Unfortunately, during that process her uterus and placenta separated,

54
00:09:53.130 --> 00:10:02.240
Dr. Matthew Angelidis: suffering a placental abruption and partial uterine rupture. She bled to death on the floor of her kitchen in front of her family. When EMS was called,

55
00:10:02.240 --> 00:10:26.169
Dr. Matthew Angelidis: our brand new blood response units arrived within 4 min of the 9-1-1 call, and she got her first drops of lifesaving whole blood within 6 min of her 9-1-1 call. Chelsea Tuft went on to receive 2 units of whole blood by the EMS team and route to our trauma center, where she underwent an emergency surgery. The trauma team, the surgeons and ER docs who took care of her are confident

56
00:10:26.180 --> 00:10:33.080
Dr. Matthew Angelidis: that baby Rosie and Chelsea would not be here today if our EMS system was not carrying blood on ambulances.

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00:10:33.230 --> 00:10:38.610
Dr. Matthew Angelidis: That's the reason why we can talk about the statistics like Clary mentioned before.

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00:10:38.630 --> 00:11:03.099
Dr. Matthew Angelidis: But this is about saving lives. So why, whole blood? Just a brief background, Low Titer O Positive Whole blood (LTOPWB) is exactly what it sounds like. It is whole blood. It hasn't been put through a bunch of filters. It hasn't been centrifuged down. It is literally blood taken directly from a patient stored in a bag and then transfused

59

00:11:03.100 --> 00:11:27.580
Dr. Matthew Angelidis: before it expires, either within 21, or 35 days, depending on the product. And the beauty of this single bag of blood is that it replaces traditional component therapy, which unfortunately, is complex. Packed cells, platelets, and fresh frozen plasma are difficult to store. They require different temperatures. Some require thawing, they take time to transfuse. So in the world of EMS or

60
00:11:27.580 --> 00:11:33.939
Dr. Matthew Angelidis: transfusion care Low Titer O Positive Whole Blood really is the product of choice.

61
00:11:33.940 --> 00:11:48.849
Dr. Matthew Angelidis: I would tell you, if you're in a city or a system, and you can only use plasma, or only use pack cells or platelets, that's significantly better than crystalloids or saline. But if you had your choice, the dream product is whole blood.

62
00:11:49.250 --> 00:12:14.169
Dr. Matthew Angelidis: I like to tell people that Low Titer O Positive Whole Blood is organic, all natural, Non-GMO, gluten-free whole blood. It genuinely is the perfect product. When you're bleeding to death, what you need is whole blood, and we love it on the EMS side, because it's easy to store and transport. It causes fewer transfusion reactions, it contains less additives and anticoagulants, it causes less dilutional coagulopathy,

63
00:12:14.300 --> 00:12:17.540
Dr. Matthew Angelidis: and it's fast and easy to deliver.

64
00:12:18.010 --> 00:12:38.310
Dr. Matthew Angelidis: So with that, I want to talk a little bit about why EMS, because everybody traditionally thinks well, blood transfusions are a hospital game, and the reality is, the evidence is crystal clear that time is the enemy. When you are bleeding to death, the longer you take to receive your blood transfusion, the less likely you are to survive.

65
00:12:38.400 --> 00:12:52.599
Dr. Matthew Angelidis: In this clinical trial, analyzing 2.5 million trauma patients and their bleeding outcomes really clearly shows us that if you're bleeding to death, you want a transfusion as fast as you can possibly get it.

66

00:12:52.600 --> 00:13:13.020
Dr. Matthew Angelidis: We translate that in this trial, where we look specifically in emergency departments, at outcomes for patients based on how long they waited for their first transfusion. And it's staggering to say this, but for every minute we delay a transfusion to a hemorrhagic shock patient, we increase their chance of dying by 5%.

67
00:13:13.020 --> 00:13:24.290
Dr. Matthew Angelidis: And if you do the math out over about 20 to 30 minutes, if you're bleeding to death, you will die, that we get to 100% death, which is why EMS is so important.

68
00:13:24.760 --> 00:13:40.390
Dr. Matthew Angelidis: The reality is that most patients from the time of injury or bleeding event to arrival to the hospital, take about 36 minutes. And so we know that roughly 40% of the patients who bleed to death

69
00:13:40.390 --> 00:14:00.810
Dr. Matthew Angelidis: do so before they ever make it to a hospital. Hopefully, that clarifies the concept of why we really need to investigate systems of getting blood products into the hands of our paramedics and firefighters. A lot of people think that this is a novel new idea, right? We just heard Clary say less than 4% of counties, less than 2% of EMS

70
00:14:00.810 --> 00:14:28.760
Dr. Matthew Angelidis: communities store transport and transfused blood. But the reality is whole blood is not new, it's been around since World War I. More than a million units of whole blood have been transfused, and we have access to all of those data records and outcomes. So we went away from whole blood for a brief period around the Vietnam war to store pack cells and platelets and other ways to transfuse, but the reality is whole blood is not new,

71
00:14:28.760 --> 00:14:35.360
Dr. Matthew Angelidis: genuinely believed to be safe, and has an incredibly safe track record as a transfusion product.

72
00:14:35.800 --> 00:15:04.629
Dr. Matthew Angelidis: So with that I want to summarize. How do we do this in Colorado Springs? How did we partner with our blood banks and our blood suppliers and our EMS teams and hospitals? We kicked off our program back in May of 2024, and we use a hot car model. So we have two supervisory paramedic vehicles that store and transport two units each. So we have four units of Low Titer O Positive Whole Blood moving around the city at any given time.

73
00:15:05.810 --> 00:15:28.710
Dr. Matthew Angelidis: Those blood products come through what we call a rotation concept. And David Long, in the second part of this talk, is going to tell you a little bit about partnering directly with blood suppliers. We in the city of Colorado Springs partnered with our trauma hospitals, and the idea here is that every level one trauma center nowadays is carrying or transfusing whole blood.

74
00:15:28.710 --> 00:15:46.459
Dr. Matthew Angelidis: It's become the standard of care, because it clearly is a better way to resuscitate your hemorrhagic shock patients, and in Colorado Springs, UC Health's Memorial Central is our busiest trauma center, and they were throwing away 13 to 20 units of whole blood a month. You see, they have to buy enough

75
00:15:46.460 --> 00:16:10.809
Dr. Matthew Angelidis: to predict what number of patients they may have that may need blood transfusions which inevitably means if we don't want to run out, they have to buy more than they expect to use. Those blood products sit on the shelf, and if not used, they expire and are thrown away, and in Colorado Springs we said, well, why don't we let our EMS teams carry around some of that blood? If you run out at the hospital, we can bring it back to you. So the hospital patients have access.

76
00:16:10.810 --> 00:16:35.790
Dr. Matthew Angelidis: But theoretically there's a group of patients, roughly 40% of those who bleed to death that we might be able to get this blood to in the field, and instead of throwing away the valuable resource, we can transfuse those patients, and they survive to make it to you at the hospital, where they can see their surgeons and ICU docs. So every week our EMS team picks up fresh units of blood. If they haven't transfused them, they carry them for seven

77
00:16:35.790 --> 00:16:41.499
Dr. Matthew Angelidis: days, and then they return them to the trauma center, where they're used in a high use facility.

78
00:16:41.570 --> 00:17:11.359
Dr. Matthew Angelidis: And the idea here, and what we've seen in Colorado Springs, is that we reduce blood product wastage. We reduce the total amount of blood products we use. I'll talk about that a little bit more later, and then we decrease hospital costs. So ICU and hospital lengths of stay, emergent surgeries, all those expensive things go down. So the idea of

partnering with your trauma centers means that you will save the healthcare system money and reduce blood product wastage. And most importantly, you will save lives of patients.

79
00:17:11.359 --> 00:17:36.300
Dr. Matthew Angelidis: So let's go through a little bit specifically about how EMS teams do this. So we purchased some fancy coolers. I have no relationship with Delta Ice, but they make a beautiful product. This bluetooth cellular enabled cooler stores blood at the AABB's required temperatures for in transport, and it connects with cell phones of providers and physicians, so that we can make sure blood is always maintained

80
00:17:36.300 --> 00:17:43.889
Dr. Matthew Angelidis: the correct temperature, and that it's safe to transfuse. This allows the blood banks to safely allow my paramedics to carry blood around.

81
00:17:44.460 --> 00:18:04.800
Dr. Matthew Angelidis: Secondarily, we swap out the liners every morning, so the cooler is designed to last 72 hours at temperature. Every morning at shift change my medical lieutenants. Paramedics in the fire department change out the cooler liner with a fresh one, so we will never have the risk of going outside of the mandated temperatures.

82
00:18:05.420 --> 00:18:35.299
Dr. Matthew Angelidis: We have a backup system. All of our blood units have a safety view 10 sticker on them when it's clear. We know that the blood has been within the required temperature range at all times. If it turns red, the blood at some point has either gotten too cold or too hot. Usually it's too hot, but in Colorado we do get some cold winters, and so we could have blood get too cold as well. So, before transfusion, our paramedics pull out the blood, inspect the sticker as a final visual confirmation that the blood is safe to give to our patients.

83
00:18:36.650 --> 00:19:01.070
Dr. Matthew Angelidis: Okay, how do we get them to the right places? Right? I got a city of 1.2 million citizens. We have 40-some odd fire stations. We have more than 30 ambulances in service every day. North of 90,000 9-1-1 calls of service. Well, we partnered with our 9-1-1 authority. We use medical priority dispatch, and we are able to select out determinants that automatically attach our blood response units.

84
00:19:01.070 --> 00:19:26.010
Dr. Matthew Angelidis: I know that our national highway and traffic safety folks will smile when they see that auto pedestrians and motor vehicle accidents, Rollover Mvcs are some of the

leading calls that require blood transfusions. But if you meet any of the determinants as determined by the call takers in the 9-1-1 center, they will automatically attach the blood response units in the CAD. Secondarily, we allow first responding units to request their

85
00:19:26.010 --> 00:19:37.050
Dr. Matthew Angelidis: blood response medics. So we've trained the paramedics in our city and system to make a phone call to the blood response unit within 30 seconds of scene arrival if they believe a patient may need a blood transfusion.

86
00:19:38.750 --> 00:20:01.330
Dr. Matthew Angelidis: Next up we have a guideline. This is how EMS providers operate in the field. They need a physician directed guideline or protocol. Ours is a cut-and-paste copy of what they're doing in San Antonio. What they're doing in Pittsburgh and New Orleans. You don't have to reinvent the wheel here. There's proven, systematic, objective criteria that you can use to make a decision on whether or not to include

87
00:20:01.330 --> 00:20:26.250
Dr. Matthew Angelidis: a blood transfusion for your patients. If you read the slide, what you'll see is, you know, you have to have blood available. So the blood response medic has to be available. You have to think the patient's problem, their hypotension shock is from bleeding, you know, not sepsis or something else. We don't transfuse kiddos under six months of age, mostly due to the size and weight issues around getting the right dose of blood to them, and then we always check for religious exemptions,

88
00:20:26.250 --> 00:20:50.810
Dr. Matthew Angelidis: respect our Jehovah's witnesses and their right to not receive blood transfusions. And so we're very, very cognizant of that before we transfuse blood. Any two of the following, as you would guess hypotension and shock findings for EMS. And then we have implemented point of care ultrasound in our city, which means that we do cardiac ultrasound on the scene of traumatic arrest, and this is designed to preserve product.

89
00:20:50.810 --> 00:21:12.769
Dr. Matthew Angelidis: If we see cardiac organized motion on our ultrasound, we transfuse and resuscitate those patients under the idea that they are savable. If, however, my paramedics put the ultrasound on, and they see a still heart, cardiac standstill, no organized cardiac motion, we do not transfuse valuable blood products to those patients. So we use ultrasound to save a valuable resource.

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00:21:14.740 --> 00:21:16.040
Dr. Matthew Angelidis: There you go.

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00:21:16.470 --> 00:21:43.889
Dr. Matthew Angelidis: There's my battalion chief with his ultrasound machine. We purchased the blood warmer. You don't have to do this, but warm blood is better than cold blood. And so these Israeli based units. QinFlow makes the example we bought, tried and true and tested by special forces in the military for the United States. We can connect blood into this. It goes through a warming unit and is infused into the patient with the right blood Y tubing. We can get a unit of blood in under 3 minutes.

92
00:21:46.040 --> 00:22:14.409
Dr. Matthew Angelidis: How we doing in Colorado Springs? Well, my guys are kicking butt. We're saving lives. The bottom line is we save about one life every 72 hours in our city. I can't understate how significant that is for your EMS communities. These guys show up on scene, and they're proud to be bringing a life-saving treatment. It does wonders for morale. It reduces burnout and stress for your EMS teams. They feel like they have something they can do for bleeding patients, which traditionally

93
00:22:14.410 --> 00:22:30.259
Dr. Matthew Angelidis: we would give salt water and watch them bleed to death in our ambulances. No one dies in our city now. I mean, they're proud to be a part of this program. It's fantastic to watch them rally around this idea and save lives. We're given lots of blood, and we're saving lots of patients.

94
00:22:31.720 --> 00:22:33.739
Dr. Matthew Angelidis: Who are we giving blood to?

95
00:22:36.410 --> 00:22:56.719
Dr. Matthew Angelidis: We have roughly 20% of our patients being non-traumatic medical patients. These are GI bleeders like Chelsea, tough story, labor and delivery related hemorrhage. But then the vast majority are trauma, and the vast majority of those are automobile accident patients.

96
00:22:56.720 --> 00:23:12.030
Dr. Matthew Angelidis: And what are we seeing? Well, we're seeing that if you get blood from EMS you're alive. All the big orange bars are people who got blood and stayed alive. The green bars are people who die that get blood. You can just see the screens covered in orange.

97
00:23:12.030 --> 00:23:13.570
Dr. Matthew Angelidis: You want blood from EMS.

98
00:23:14.960 --> 00:23:21.269
Dr. Matthew Angelidis: We see the expected changes in shock parameters, right heart rates come down, blood pressures go up.

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00:23:23.230 --> 00:23:32.879
Dr. Matthew Angelidis: And then I want to talk briefly about scene times, because, traditionally, in EMS, we function under a scoop-and-run idea with trauma patients.

100
00:23:32.880 --> 00:23:57.589
Dr. Matthew Angelidis: You need to get them to a trauma hospital because they need a blood transfusion, and they need a trauma surgeon to evaluate them. So we're really cognizant of, we don't want to delay access to definitive care. Since implementing whole blood, when cross-matching patients in our city we have not increased seeing times more than, on average, 5 minutes and 38 seconds. So the good news is that patients are getting blood faster

101
00:23:57.590 --> 00:24:00.770
Dr. Matthew Angelidis: than they would if we scooped-and-ran straight to the hospital.

102
00:24:03.810 --> 00:24:33.739
Dr. Matthew Angelidis: And then some financial good news. So when your EMS system goes live with whole blood, you can tell your healthcare partners at your trauma hospitals that you're going to save them overall cost. So if you get your first unit of blood by EMS, on average, you will receive half the total blood products you did if you wait until you get to the hospital, which means that we're using less overall total blood products per patient, which means we don't have to buy as much blood- pretty cool.

103
00:24:35.470 --> 00:24:58.919
Dr. Matthew Angelidis: Secondarily, if you get your first unit of blood by an EMS provider in our city, on average, you spend half as much time in the ICU, and those of you in the reimbursement world will know that ICU days pay really well for the first two or three days, and then not so well after that. So if you're giving blood via EMS, you are going to save your healthcare system money, ICU days and length of hospital days.

104
00:24:58.920 --> 00:25:12.039
Dr. Matthew Angelidis: I want to finish up hopefully with an encouragement for today's event, which is EMS professionals and providers are popular. People love their firefighters, paramedics and EMTs.

105
00:25:12.040 --> 00:25:41.800
Dr. Matthew Angelidis: We can partner with our local blood banks and local blood suppliers to collect blood. San Antonio has set up a Heroes in Arms program. Here in Colorado Springs. We've hosted two blood drives with our local blood supplier, Vitalant, and they've been profoundly successful. In fact, in Colorado Springs we collected north of 80 units of whole blood across our two blood drives which covers the program in our first year. We use that relationship to decrease the cost of blood for our EMS teams and trauma hospitals.

106
00:25:41.800 --> 00:25:49.690
Dr. Matthew Angelidis: So please consider partnering with your local blood suppliers and running blood drives with your fire department and EMS teams.

107
00:25:52.040 --> 00:25:58.780
Dr. Matthew Angelidis: It's my honor and pleasure to introduce David Long, the Executive Director of Tidewater EMS Council, David.

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00:26:00.840 --> 00:26:21.750
David Long: Hey, thanks, Doc, much appreciated, and probably a little bit of a tough act to follow. But we'll jump in. So I'm a retired paramedic, lieutenant paramedic with the Chesapeake fire department and worked my way into the executive director role at the Tidewater EMS Council,

109
00:26:21.750 --> 00:26:40.829
David Long: and you know what's really, I think important, for me, just to emphasize here is that it just means that our approach is a little bit different. So while you are a single city, you know, system from a regional council perspective, we're currently working with ten jurisdictions. I have

110
00:26:41.270 --> 00:26:47.900
David Long: six cities and four counties, and I currently have blood programs operating in five cities.

111

00:26:49.401 --> 00:27:16.850
David Long: For me, as well, you know, I think it's important when we talk about this type of a program and or initiative, and that there were people out there blazing the trail. And I certainly, you know, benefited as well as our region absolutely benefited from, you know, from those folks. So just have to do this quick rundown shout out to Dr. Peter Antevy Dr. Joseph Kotora!

112
00:27:17.219 --> 00:27:36.040
David Long: When you look at what I consider to be my brain trust, Randy Schaefer. Then I had folks like Chief Charlie Coyle, Major Tom Dransfield out of New Orleans, Dr. Duchesney and Dr. Pepe and then even you know, from a

113
00:27:36.520 --> 00:27:43.769
David Long: from a blood banker, John Barry, you know, has just, you've been invaluable to us, you know, and our and our whole efforts.

114
00:27:44.020 --> 00:28:08.959
David Long: So my approach here is a little different, and you can see that the whole blood transfusion criteria that we use is very similar to what Dr. Angelidis was using, what's being used in San Antonio, which really means that if you are considering starting a program, it's already been figured out, and this isn't something that has to be recreated.

115
00:28:09.120 --> 00:28:16.492
David Long: I think the next important thing for us was that once we understood what that was, it's really then trying to understand, you know,

116
00:28:17.370 --> 00:28:44.600
David Long: whether or not there's a particular need. When you look at some of this data, I think additional research that's coming out and demonstrating some value. Is there other parameters that we could potentially look at? For instance, lactate values are really, I think, dependable or reliable, but it's the ability to do point of care testing in the field that might be a bit of a challenge for us.

117
00:28:45.050 --> 00:29:06.629
David Long: So as a Regional EMS Council, you know, who are we? What do we do, you know? And etc. Well, we're a 501c3 nonprofit organization that really focuses in on reducing death and disability. And part of that, you know, process means we are all about collection and analysis of data.

118
00:29:06.630 --> 00:29:16.560
David Long: and how we then look to find areas in which to improve the quality of care that's delivered in the region.

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00:29:18.560 --> 00:29:23.078
David Long: So it's evident, then, that we looked at our data,

120
00:29:23.600 --> 00:29:42.569
David Long: and we thought, and we saw in that data that there was a need to improve the level of our trauma care in region, which is what started us down this path in roughly 2020. And, as you can imagine, we were interrupted by Covid, and had to pick back up, you know, post Covid in 2021.

121
00:29:43.300 --> 00:29:48.047
David Long: So a little fun fact here in regards to

122
00:29:48.620 --> 00:30:09.959
David Long: the area that we serve. So Dr. Angelidis mentioned that he has a 1.2 million population. We also have a 1.2 million population, however, that spread across ten jurisdictions, 2,700 square miles. So, as you can see, I've, I benefit from the fact that I have four designated trauma centers, you know, in the region, and

123
00:30:10.410 --> 00:30:18.469
David Long: two level ones, one of those is a pediatric, you know, trauma center, and then a level two and a level three trauma center.

124
00:30:18.880 --> 00:30:27.380
David Long: And I'll touch on why, that's extremely important. Or at least we're finding it to be extremely important.

125
00:30:27.510 --> 00:30:28.540
David Long: So

126
00:30:29.242 --> 00:30:37.687

David Long: as we talk about starting a whole blood program, they warned me about this double clicking. What?

127
00:30:38.500 --> 00:31:03.820
David Long: What do you consider about starting a blood program? So I'm going to give Dr. Antevy credit. I'm not sure it's his, but I give him credit for the R and D. So if you don't know, that's a rip off and duplicate. So that's exactly what we've done. We have looked at those that have gone before us and tried to figure out what that is. So your first thing we had to ask was, is there a need?

128
00:31:03.820 --> 00:31:26.620
David Long: So TEMS reviewed three years worth of PI data, and as we looked at that PI data, we simply use the transfusion criteria to do that three-year retrospective look, and from that we determined that we would be administering Low Titer O Positive Whole Blood to about 240 patients on an annual basis.

129
00:31:28.070 --> 00:31:32.119
David Long: Then you have to consider things like blood supply. Where's the blood gonna come from?

130
00:31:32.508 --> 00:32:00.120
David Long: You heard him talk about the relationship that he has with his hospitals. We weren't so fortunate in our region. Hospitals were not supportive of that initiative and or effort, nor or any of the local, you know, blood banks. So we had to reach out to a blood supplier that's in South Carolina. The Blood Connection to establish, you know, a relationship in order to get to yes.

131
00:32:00.669 --> 00:32:25.860
David Long: In addition, as you mentioned with equipment there, there could be some funding issues and or challenges. There's all kinds of equipment things that can be learned from the different folks that have blazed the trail before us. There are some cheaper alternatives to get you up and running, and then there's some more expensive but elaborate equipment that might provide, you know, better continuity, long term.

132
00:32:26.280 --> 00:32:55.379
David Long: And certainly there are challenges with minimizing waste. You are gonna have to be somewhat innovative and creative in your approaches, you know, to that. And I hope to touch on that here shortly, about one of the things that we were able to do with that. But more importantly than one of the other considerations is, you know, how do you put, you know, blood

product back into the system now that you're using. So being able to set up and support blood drives

133
00:32:55.380 --> 00:33:01.449
David Long: and trying to ensure that we aren't jeopardizing,

134
00:33:01.910 --> 00:33:09.290
David Long: you know, our healthcare systems and their need for the same blood product.

135
00:33:11.530 --> 00:33:32.390
David Long: So from a tools perspective, these are some of the tools you know of our system, I think Dr. Angelidis already mentioned about Delta and QinFlow. We use LifeFlow product as well. We do an advanced resuscitated care bundle using TXA and calcium gluconate.

136
00:33:32.723 --> 00:34:00.100
David Long: We use packs bags to carry, you know our product, and then shout out to Holly O'Byrne from DC Fire and EMS for the little remember sticker, so we put that on all of our product in our bags, you know, as reminders now to have people that are are managing trauma patients to get that TXA and that calcium on board early just as they do just as they do with blood.

137
00:34:01.640 --> 00:34:28.629
David Long: So what does it look like for us? So we we took a crawl, walk, run approach. As you can imagine, across five jurisdictions in this quick timeline we started in October of 2022 single jurisdiction, single agency, single supervisor car with a focus on adult trauma only. And, as we learned from that, we expanded in April 23rd to bring in another jurisdiction, another supervisor vehicle.

138
00:34:29.011 --> 00:34:42.759
David Long: And then, by the time we hit September, we added a second unit in Virginia Beach with then shifting our program after analysis of our first year's worth of data to include pediatric and medical etiology.

139
00:34:43.197 --> 00:35:10.399
David Long: And then we rapidly expanded, as you can see in the timeline here through the cities of Portsmouth, Suffolk, and Chesapeake. And then we got to May 2024 kind of following the footsteps of Tom Dransfield and the folks down at New Orleans EMS, with the advanced

resuscitative care bundle. So that's when we started administering two grams of TXA, you know, in a push dose as well as we opted for calcium gluconate

140
00:35:10.660 --> 00:35:28.649
David Long: just from a patient safety perspective. So we're up to five jurisdictions that are carrying eight units of blood on the street for us every day, again covering roughly a 1.2 million population in our extremely densely populated urban centers.

141
00:35:31.270 --> 00:35:47.120
David Long: So what do we, what do we see from this? So I can tell you one of the things in contrast to Dr. Angelidis stories. One of our stories, Chesapeake Fire Department responded to a motor vehicle entrapment.

142
00:35:47.120 --> 00:36:12.119
David Long: Young lady, entrapped for roughly 30 minutes, successfully extricated, and as they placed her on a stretcher, went into arrest, she was immediately transfused unit whole blood. ROSC was obtained successfully got her to the level one promise center in the region where she underwent surgery and was discharged seven days later.

143
00:36:14.080 --> 00:36:38.450
David Long: The other thing that we have done in our program is try to figure out how we can contribute to the program and research with it. What we, what we've noticed is that we've worked with Sentara Healthcare, Eastern Virginia Medical School and then we've reached out to some other programs like LSU, New Orleans EMS, Birmingham, Alabama, where Dr. Holcomb's at.

144
00:36:38.620 --> 00:37:02.560
David Long: and also the DOD with our Naval Medical Center ports, with our level two trauma Center region to look at calcium levels in trauma. So we have two active IRBs that are doing retrospective studies on calcium and trauma. And essentially what patient care with the advanced resuscitated care bundle looks like, and the initial data that's coming from us is showing that our

145
00:37:02.560 --> 00:37:23.779
David Long: patients that we're managing the calcium levels are statistically, significantly lower, and that it's something that we will be watching and paying attention to, you know, as we continue to publish this research and continue to collect more data and refine that.

146
00:37:25.320 --> 00:37:31.805
David Long: So for us, what that kind of looks like is we've transfused to date 275 units.

147
00:37:32.120 --> 00:37:54.169
David Long: You can see for us on our penetrating trauma, we're about 49%. Our medical etiology is up to roughly 28%, our leading classification there is GI bleeds in this region. For us, If we transfuse blood, there's a 71.1% survival rate with whole blood transfusion.

148
00:37:54.170 --> 00:38:10.010
David Long: But one of the things that we watch specifically is that first 24 hours. So if a patient survives 24 hours after receiving blood from EMS, then that survive-to-discharge rate goes up to 94%

149
00:38:14.570 --> 00:38:32.000
David Long: For us, we're transfusing blood at roughly a rate of 33 point, our unit of blood every 33.4 hours, and we've been able to look at our length of stays, and our length of stays run between 6.9 and 7.1 days post transfusion.

150
00:38:36.710 --> 00:38:37.720
David Long: So

151
00:38:38.259 --> 00:38:49.030
David Long: I shift that gear now to the blood drives. And why? Why? We emphasize the blood drives because we kind of see the blood drive or the blood collection

152
00:38:50.010 --> 00:39:09.629
David Long: as a similar priority in regards to a patient receiving an actual blood transfusion. We can't transfuse what we don't have, so we have to be aggressive in the manner in which we try to put blood back into the system. So I have a contract obligation for a quarterly blood drive. But

153
00:39:09.810 --> 00:39:23.149
David Long: our approach has been to look at monthly blood drives as a way to ensure that we're trying to, again, collect enough to make a significant enough impact. You know, on the

154
00:39:23.780 --> 00:39:25.490

David Long: on the whole blood program.

155
00:39:26.050 --> 00:39:44.170
David Long: So we took a couple of creative approaches. We're talking to our public safety community. There's now research out that indicates that firefighters in particular can reduce their cancer risk by being regular blood donors. So we've shared that messaging and research in region.

156
00:39:44.280 --> 00:40:04.029
David Long: We have started to reach out from a community engagement perspective. We've been through the Kiwanis and a couple of other organizations like them to share stories and importance about their involvement. And this kind of life saving, you know, program

157
00:40:04.398 --> 00:40:16.259
David Long: as a member of the Chamber of Commerce, we're working with our local businesses. We're discussing with them things like, Stop The Bleed and how they can host blood drives, and again,

158
00:40:18.570 --> 00:40:30.885
David Long: and with our blood supplier The Blood Connection they do incentives. So they give e-gift cards to donors, and plus I also as a

159
00:40:31.840 --> 00:40:59.820
David Long: owning a contract with them, I also get a certain number of dollars for each unit collected that comes back to us organizationally to support our ongoing efforts. And then we use it a great deal of the social media, and local media to push and spread. We found that QR codes are very helpful. For a lot of folks, it simplifies, you know, spreading the word quickly in those efforts.

160
00:41:01.020 --> 00:41:09.890
David Long: And for us it's raising the awareness, you know, and making sure that we can tie in

161
00:41:10.487 --> 00:41:26.029
David Long: Really kind of a we call it a three-pronged approach to our donor pool. We look at the public safety community. We know that they are a backbone, and often, you know, will rescue us, you know, when we're struggling with donors.

162
00:41:26.030 --> 00:41:47.790
David Long: But we want to put a responsibility within the community to be the, to get the community supporting, and that the community is actually the primary source of donations. And then third, we're using the business community to also, you know, engage in our efforts to try to

163
00:41:49.810 --> 00:42:03.900
David Long: strengthen that relationship between the community, the businesses, the businesses of public safety. So it's kind of our triad approach, if you will in regards to these blood drives

164
00:42:04.840 --> 00:42:05.570
David Long: right

165
00:42:05.700 --> 00:42:29.539
David Long: and quickly, just to illustrate. So this is just the fact that we already have blood drives planned from now through the end of the year. We've actually got a couple in May, where we have an annual education event the week prior to EMS week. But we've already got one lined up for EMS week in the region as well so

166
00:42:29.897 --> 00:42:48.122
David Long: anything that we can do, or anything that we can share in regards to how we do our blood drives, and how we prioritize or manage those, happy to share information. But our ultimate goal is to identify eight businesses that are willing to be annual

167
00:42:48.770 --> 00:43:06.140
David Long: supporters of our drives, and you can see on the October 30th you know, date. There we actually got a hotel that was willing to do kind of a vampire, you know, blood drive process. And now they've got that on their calendar for an annual, you know, contribution.

168
00:43:07.710 --> 00:43:34.290
David Long: So I think for me, just in a quick wrap up, you can see that programs are going to be unique. I think if you've seen a blood program, you've seen a blood program. But the willingness of the folks that have a passion for improving quality of care for making a difference, you know, paying attention to research and willing to engage

169
00:43:34.617 --> 00:43:52.610

David Long: you aren't gonna find yourselves you know, isolated or out there, you know, alone. Lots of talented people with lots of information that are willing to share. And you can easily get a program up and running. So I think it's really that mantra of just find a way to yes.

170
00:43:53.050 --> 00:43:57.210
David Long: Thanks, Clary, I'll turn it back over to you, sir.

171
00:43:58.180 --> 00:43:59.409
Clary Mole: Thank you, sir.

172
00:44:01.320 --> 00:44:12.059
Clary Mole: So thank you to both our speakers, Mr. Long and Dr. Angelidis, and we'll go ahead and go into the QA portion of our

173
00:44:12.280 --> 00:44:17.880
Clary Mole: session. As a reminder, if you have a question, please use the Zoom's QA feature

174
00:44:18.200 --> 00:44:29.330
Clary Mole: located at the bottom of your screen. If we don't get all of the questions today, we'll compile a document of responses and share those along with this recording on the archive on ems.gov.

175
00:44:29.680 --> 00:44:50.200
Clary Mole: Our first question comes from Brooke Burton, do you need to have extra staff to monitor, deliver, or return blood products to the hospital? How did you manage that? Those logistics, Dr. Angelidis it looks like you answered in the chat. If you want to go ahead and share what you said aloud, so everybody could benefit. That'd be great.

176
00:44:50.470 --> 00:44:57.840
Dr. Matthew Angelidis: Yeah. So in our city and system, we utilized existing staff to execute the additional workload.

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00:44:57.840 --> 00:45:24.440
Dr. Matthew Angelidis: So we have supervisory paramedics in each battalion across the city, and we can utilize those folks to do the transition paperwork with the hospitals. Our blood banks did not hire any additional folks. They have a team in place for emergency release and

transfusions already. We just added our fire department in as another group of folks they interface with, like the OR the ER

178
00:45:25.092 --> 00:45:32.789
Dr. Matthew Angelidis: part of our early grant funding did include what I would call an administrative assistant

179
00:45:32.790 --> 00:45:57.320
Dr. Matthew Angelidis: or program administrator. So we have a PRN civilian person who helped us with building data collection spreadsheets and some of our CQI algorithms. I would not consider that mandatory or required, but it was something that our philanthropic teams thought that they could get for us, and so we included that in our initial funding.

180
00:46:00.390 --> 00:46:22.350
David Long: So, Clary, the only thing that I would add, so like in our case, because we're using a blood supplier out of South Carolina, they do not take blood back, and we had some challenges early on, you know, with with blood wastage, and what blood banks and hospitals were willing to do or what they weren't willing to do.

181
00:46:22.350 --> 00:46:43.639
David Long: We successfully negotiated with Naval Medical Center ports, with our level two trauma center and region to take the short dated blood from us. So it's really a donation out of our program to them. But they then take that short dated blood and use it within the level two trauma center. And we currently have discussions with two additional healthcare systems.

182
00:46:44.136 --> 00:46:46.120
David Long: using the same model.

183
00:46:49.950 --> 00:47:00.170
Clary Mole: Thank you for those answers. Patricia Frost wants to know: What's the program's total cost to start up, including training? Also, what's the programs

184
00:47:00.630 --> 00:47:02.360
Clary Mole: cost run rate?

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00:47:03.880 --> 00:47:21.469

Dr. Matthew Angelidis: Yeah. So I'll start. What we did was, we estimated the total number of units we would expect to give over a three year trial program. And so when we went to our philanthropic organizations and wrote our grants for funding,

186
00:47:21.902 --> 00:47:40.059
Dr. Matthew Angelidis: we did it on a three-year trial program, really under the guise that I expect CMS and the insurance models to catch up and start to reimburse for this, our cost for equipment for our city, and two sets of equipment

187
00:47:40.180 --> 00:48:06.629
Dr. Matthew Angelidis: across two transport teams was about $40,000 of equipment. That's the coolers and the blood Y tubing disposables the Qin Flow warmers, the ultrasound machines, etc. Outside of the equipment, the real cost is the cost of blood, and that's variable, based on region, and who your supplier is. I think the national average for a unit of Low Titer O Positive Whole Blood is $650.

188
00:48:06.630 --> 00:48:25.840
Dr. Matthew Angelidis: So really the cost is the blood. And so that's why I think the relationship with your blood banks at the trauma hospitals is quite helpful because they're buying that blood already, and if you can sell them on the idea that your EMS teams are just going to store it in transport,

189
00:48:26.030 --> 00:48:46.229
Dr. Matthew Angelidis: that they don't have to buy any additional blood, and they'll throw away less blood. Our data thus far would suggest that we're saving our hospitals money on blood. So that's a tough sell. But that's the ROI argument that I would make, and that we were, you know, fortunate to be able to make in our city and system.

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00:48:48.770 --> 00:49:00.539
David Long: Yeah. And I would add that for us, for the eight units of blood that I have on the street for a year's supply, roughly, is $164,000 annually.

191
00:49:00.600 --> 00:49:27.350
David Long: So we don't have that benefit of the blood coming out of the hospital like Dr. Angelidis does. That $164,000 basically will cover the cost of the blood plus the administration supplies. So the blood tubing, the CDU warmer, you know, for the blood warmer. But when it comes to like things like a freezer that you'll need to freeze, the ice packs, the warmer itself,

192
00:49:27.430 --> 00:49:55.965
David Long: the coolers that you're carrying again, depending on which, the cooler that you choose to go with. Delta development certainly is a little bit pricier compared to the Credo ProMed cooler. But you're probably gonna spend anywhere between, you know, $60,000 and $80,000, you know, on equipment. Now, that is again depending on the volume. So there are many agencies that may start up one or two, you know, and then they may grow from there or,

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00:49:57.200 --> 00:50:02.000
David Long: I think, as information has become available through this

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00:50:03.236 --> 00:50:06.433
David Long: this program, we're seeing that people are

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00:50:07.130 --> 00:50:12.750
David Long: at least more willing, you know, to implement, you know, on a large scale than starting small

196
00:50:13.160 --> 00:50:14.500
David Long: back when we did.

197
00:50:18.390 --> 00:50:22.358
Clary Mole: It looks like she has a follow up question.

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00:50:23.020 --> 00:50:29.609
Clary Mole: Is there any, and she being Patricia Falls, that is, is there reimbursement with insurance for transfusion in the field?

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00:50:31.400 --> 00:50:56.159
Dr. Matthew Angelidis: Yeah, the short answer is not really recently. CMS approved ALS 2 coding for ambulance and fire departments that transfuse blood. So you automatically qualify for that high level reimbursement that obviously doesn't cover the cost of delivering blood. But at present there's no, you know, firmly entrenched way to bill and collect for EMS blood.

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00:50:56.470 --> 00:51:21.239

Dr. Matthew Angelidis: I am aware of hospitals and healthcare systems that bill after the patient arrives, my attorneys and healthcare system did not think that that was kosher. So we do not do that in Colorado Springs. But I am aware of programs that do what's happening at a national level is we want everyone trying to build a patience for this. This is to build

201
00:51:21.500 --> 00:51:45.530
Dr. Matthew Angelidis: a data bank with insurance companies to make the push, to get this as a reimbursable process. So if you are doing a blood program or considering it, you should work with your coding and billing service to bill patients, even if you're not going to get reimbursed. Those declined payments are very helpful at the national level, as we look to make blood reimbursable for all.

202
00:51:49.640 --> 00:51:59.989
Clary Mole: So if either one of you are willing to share your determinant codes that are used to dispatch blood units, is that something that's available to folks?

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00:52:00.480 --> 00:52:22.490
Dr. Matthew Angelidis: Yep, I'll send them. I can send them through you, Clary and the team, and you can distribute them. Or I put my email in the chat. I'm happy if you, if you're listening today and you want to email me directly, I'll print out our data. You know, I had a data analyst kind of build what determinants, based on likelihood of transfusion and volume, etc. I can share all of that with you.

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00:52:26.780 --> 00:52:33.509
Clary Mole: Great Dan Gerard is interested to know if you can swap out calcium chloride for calcium gluconate?

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00:52:34.740 --> 00:52:54.960
Dr. Matthew Angelidis: My answer would be, not in the prehospital setting. Calcium chloride is quite caustic to the venous lining, and so peripheral veins and IOs are not generally believed to be safe for calcium chloride. We typically would transfuse or infuse that through a central line, a pick, a port, etc.

206
00:52:54.960 --> 00:53:14.360
Dr. Matthew Angelidis: So we tend to use calcium gluconate. And the good news is that all the research trials looking at improvement in outcomes use calcium gluconate. So that's kind of actually the preferred method. I know that's what they're doing in New Orleans. That's what we're giving here. It sounded like David and his team

207
00:53:15.028 --> 00:53:21.270
Dr. Matthew Angelidis: are are also using calcium gluconate, and it's cheaper and easier to store. So I don't know.

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00:53:22.180 --> 00:53:50.080
David Long: Yeah, no, absolutely same research, you know, and concerns identified early on, you know. So from a patient safety, patient advocacy perspective, we went strictly to calcium gluconate. I think the main, the main crux, as you mentioned doc, was when the hospitals basically confirmed that the only administration route for calcium chloride in the hospital was through central line. We know that we're not doing that in the prehospital space. So we

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00:53:50.110 --> 00:53:57.680
David Long: that was the primary, you know, reason, but the trauma docs were behind it pretty well, so.

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00:54:01.410 --> 00:54:12.860
Clary Mole: Dan has one more follow-up question to the one you just asked. In systems where fewer resources can you use freeze dried plasma to bridge the blood.

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00:54:13.650 --> 00:54:16.082
Dr. Matthew Angelidis: Yes, would be my answer. We have,

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00:54:17.060 --> 00:54:23.669
Dr. Matthew Angelidis: I have EMS systems here in Colorado that give fresh frozen plasma, and I have EMS systems that give packed cells.

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00:54:23.910 --> 00:54:44.730
Dr. Matthew Angelidis: I think if I'm being completely honest, in a decade, I suspect that many of these programs are going to be using plasma, not whole blood, just due to cost and availability. But who knows if we can build the network of collection donation? We may not do that, but I do think

214
00:54:44.730 --> 00:54:59.540

Dr. Matthew Angelidis: fresh frozen plasma platelets and pack cells are significantly better than saline or lactated ringers. So if that's the only way you can do it, if that's the product in your city or system, 100% would support going after that.

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00:55:01.790 --> 00:55:12.539
Clary Mole: I think we may have time for one more question. David Crosley wants to know: How we can encourage more hospitals and blood banks to get on board with prehospital transfusions?

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00:55:14.430 --> 00:55:26.440
David Long: So I have two things that I'll add to that real quickly, just based on my experience. When we initially approached our hospitals in region,

217
00:55:27.620 --> 00:55:49.789
David Long: the blood bankers within the hospital's mindset is really the risk averse. So the concept of saying that we're going to supply blood, or that they're going to take blood back from EMS after it's left the facility, it was one of those instances where their risk aversion really did not allow them to get to yes.

218
00:55:49.790 --> 00:56:06.009
David Long: So I think it's education right that we're going to have to continue to try to strive to educate folks across the country when you talk to the blood bankers. Really, those that are willing to get to the yes, you quickly realize that

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00:56:06.400 --> 00:56:32.560
David Long: there shouldn't be obstacles or barriers to it. So it's more of a heart issue than it is a technical issue. So I think, if we can continue, you know, to educate, inform, you know and etc. But we have similar issues within the health care system leadership because a lot of the healthcare system leaders, when you try to have the conversation about the role of whole blood versus component therapy,

220
00:56:32.610 --> 00:56:55.519
David Long: they're ingrained to the component therapy approach. So when you're trying to talk to them about adding whole blood to the mix, and what programs can use it, it's not just trauma, you know. Certainly OBGYN benefits, the GI folks, you know benefit, and etc. So anything that we can do in that education sense, I think, is going to be helpful.

221

00:56:56.008 --> 00:56:58.160
David Long: But then it's a matter of

222
00:56:58.160 --> 00:57:27.616
David Long: again, I think, going back to one of the comments Dr. Angelidis just had. When you find a system that's willing, you know, like he has in Colorado that's providing the blood and willing to take it back. And if, even if their solution is breaking it down to components and using it, you know, to to get to that zero waste, I think again, a creative approach or creative solution to, you know, again getting to yes. But in the in the absence of that, you know, I would encourage people, you know

223
00:57:28.300 --> 00:57:41.790
David Long: to take the approach of what does it take to get to yes? And who do I have to have that conversation with? So when the hospital said no, we went to the American Red Cross, who is our primary blood supplier in Virginia.

224
00:57:41.790 --> 00:57:59.599
David Long: American Red Cross said no, right. And so it put me in a third position of trying to find a blood supplier that was willing to say yes, and as we laid out the program, I get deeply discounted blood more so than most hospitals.

225
00:58:00.450 --> 00:58:04.777
David Long: My rate is less than what they pay. So

226
00:58:05.740 --> 00:58:10.689
David Long: I think it's going to be a concerted effort amongst all of those stakeholder groups to get to yes

227
00:58:11.220 --> 00:58:12.600
David Long: to make that change.

228
00:58:13.200 --> 00:58:40.259
Dr. Matthew Angelidis: I'd piggyback on that with get like level-trained folks in a room together. So we relied heavily on the team from San Antonio. We went to their whole blood course, and you know, when our blood bankers and pathologists were nervous about, you know, letting us cowboys and EMS carry blood, we had them meet with Leslie Gribon and their blood bankers.

Right? They talk the same language. They understand the transfusion, risk all the AABB and FDA requirements

229
00:58:40.260 --> 00:59:05.860
Dr. Matthew Angelidis: as an ER Doc, you know, that's foreign language to me, generally speaking. So I think that getting like level-trained folks together in a room, you know, pulling an expert that's doing it and putting them in a room with the person who has perceived barriers was really helpful for us. And so I think, gosh, I want to say one 20-minute phone call with the team in San Antonio and all the blood bankers and pathologists in Colorado Springs went, “Oh

230
00:59:05.910 --> 00:59:29.419
Dr. Matthew Angelidis: Well, Duh, we can do this.” They did it no problem. So I think I would also encourage that same thing with, like the trauma surgeons, you know, in a lot of hospitals. Trauma surgeons control Low Titer O positive Whole Blood. So you need the trauma surgeons from a place that are doing this to meet with your trauma surgeons. Same thing with the EMS fire chief level-type people and EMS community leaders.

231
00:59:29.440 --> 00:59:41.280
Dr. Matthew Angelidis: Get somebody like David in a room with your EMS council director. Right? Those people speak the same language. They're familiar with the same ideas, so I think that would be a big piece of advice.

232
00:59:43.010 --> 01:00:09.110
Clary Mole: I'm afraid that's going to have to be our final thought. We're at the top of the hour. Thank you both for your time today and speaking to us, Dr. Angelidis and Mr. Long, this is going to conclude today's webinar. We appreciate everybody participating, and we're going to put an archived version of this on our website. Again, that's www.ems.gov. We hope you're able to join us for our next webinar. Thank you, and have a great day.

233
01:00:11.740 --> 01:00:12.680
David Long: Thanks, everybody.