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Coronary Artery Bypass Graft (CABG) 2023 Data - Abstractor Training
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I'm Chris Matchison, interventional cardiologist. I operate primarily out of Torrance Memorial and I've been working with the state and with Holly for about four or five years now.

What are the sources that we have for data abstraction, the history and physical, the discharge summary, and the cardiac cath. That is where the percentage, stenosis and severity of disease is going to come from the echocardiograms is where you are going to get the ejection fraction, you can also get the estimate of systolic pressure, if you do not have a right heart cath. Obviously, the operative report is kind of the key to all of this. It is all about the intent of the surgery. What was the preoperative planning? Not things that develop intra procedurally or changes made to the plan ad hoc in the OR. Also finally the consult notes, for cards/CV surgery, the other ones that stand out for us are going to be neurology. Consult for that diagnosis of stroke, which is a very, very important data element for us.

Type of CABG – there is isolated CABG. This is your kind of bread and butter, cardiovascular disease, patient multivessel CABG. Then there is CABG + valve. Where they are talking about mitral valve, aortic valve, or the combination of mitral plus aortic. Interventions on the pulmonic valve or the tricuspid valve are exclusions and those fall into the all other non isolated CABG category.

The next three or four slides are the exclusion lists to isolated CABG and most people have access to this, so I am not going to read through all of it. What we are looking at is any sort of additional procedure that is going to add to the risk of the surgery. Anything that involves any of the valves, when we are talking about a ventriculostomy kind of situation, these are big aneurysms that need to be resected.

We talked about this before, but we keep coming back. What the pre procedure planning was. So if there was a plan to do a resection of a LV aneurysm and it was already in the planning, then that would be an exclusion. But if the surgeon gets in and sees this large aneurysm and wants to do something ad hoc, then that remains an isolated CABG. We want to be very cognizant of these types of changes.

Anything that's dealing with congenital heart disease in general is going to be an exclusion. PFO is really the only thing that that is an outlier there because it's such a minor operative procedure.

If you move outside, so excisions anything in the head and neck, any vascular surgeries on those kinds of things are all going to be exclusions. And again the congenital heart disease is the cardiac anomalies or limited or listed here, ASD VSD, those kinds of things. Any work on the aorta is going to be an exclusion and then any major vascular procedures like these aorta renal bypasses or aorta iliac femoral bypasses.

CHAT: for CHF my facility/doctor likes to use ACC AHA but not NYHA, is there a way to convert?

Dr. Matchison: there's not like a cross over, unfortunately. I don't think there really is a strong way to convert from one to the other consistently.

Back to exclusions: Resections versus the biopsy. A wedge resection would be an exclusion, a simple lung biopsy is not going to be an exclusion. And same thing for breast procedures. If it's a breast biopsy, that's not going to be an exclusion, although I don't know how common this actually is. I have yet to see any of these things, but breast biopsy versus obviously aa mastectomy or a lump resection lumpectomy.

So a planned ventricular assist device (VAD) so pre planned VAD up front is a lot different than a patient coming out of the OR with the CABG with a VAD it wasn't anticipated. So that patient that gets that VAD, that wasn't anticipated or planned, that stays Isolated CABG.

CABG plus valve:

We're talking about aortic and mitral valves exclusively, not the tricuspid, not the pulmonic.

Aortic Valve: We're talking about replacements only. If you see Bentall, that's a root replace, or that's a ascending aortic aneurysm repair also. So working on the aorta, that's going to be an exclusion.

So mitral valve repair, mitral valve replacement and then the AVR/MVR and the mitral valve can be either repair or replacement. Typically we don't see aortic valve repairs.

Exclusions from CABG + valve:

One thing that's going to come up over and over again in which we might want to clarify on this call is what we're doing with root enlargement for larger aortic valves. So we're definitely seeing that and you know, my understanding is that is going to stay as CABG plus valve.

If they do get a dedicated root enlargement in order to accommodate a larger surgical valve, I think and Dottie reached out to Dr. Bowdish, surgeon at Cedar Sinai and that was kind of the appropriate approach to this. So I think that it's important that everybody understand that's how we're going to operate. Again, if the pulmonic and tricuspid valves are intervened that would be an exclusion.

Ventriculostomy comes up again and again, and then these congenital heart defects, ASDs and VSDs, but PFOs are not an exclusion.

Anything of the head and neck, so pretty similar list to isolated CABG. Here are a lot of the vascular items again. Carotid endarterectomies and the different types of vascular bypass surgeries.

The coronary artery fistula, I think that this is on here because we said that surgery on a fistula that might require bypass is an exclusion. Those patients aren't calculus eventually because it's not your prototypical cardiovascular disease.

The maze is different for of course, and mazes in general are not exclusions, unless it's a full open maze. The full open maze procedures for the mitral valve is not an exclusion. So if it's a full open maze and the surgery is not a mitral valve repair replacement, that would be an exclusion. Any other type of maze is not an exclusion and the full open maze is not an exclusion if the surgery is mitral valve.

Chat: Planned CABG and partial pericardiectomy and lysis of adhesions. How will this be classed?

Was it a planned pericardiectomy cause? That's a huge surgery. So there's a difference between a patient having some calcium and the surgeon has to take a little bit more of the pericardium away. If planned then that would be an exclusion.

Holly Hoegh: This slide has additional information with the AVR I think.

Dr. Matchison: I actually really appreciated you having this slide for our training session because these are a lot of interesting questions that came up during the course of the audit.

Anterior mitral leaflet endarterectomy or decalcification on a patient who's undergoing an AVR. That is not a mitral valve, that would just the aortic valve. Aortic endarterectomy is considered part of the aortic valve replacement procedure.

Aortoplasty done in conjunction with AVR part of the closure and should not be an additional procedure, so some of these things that the surgeons will put in. It doesn't really add significantly to the risk. It's not an additional risk doing these things, so that's why they don't factor in as exclusions. We do see some of this where instead of doing a resection of an ascending aortic aneurysm, if it doesn't quite meet criteria for that, if it's not at that 5 1/2 centimeters in diameter, the surgeon will actually do some sort of wrapping procedure and that in theory it kind of reinforces it. There's some thought behind it that it keeps it from expanding, then developing into a true aneurysm. But that would not be an exclusion criteria.

Another one where it would just stay as an isolated AVR for endocarditis. So AVR for endocarditis, but the surgeon had to do some unroofing of the mitral valve sub annular annulus. There's an aortic mitral curtain, so there's a continuity between the aortic valve and the mitral valve. Oftentimes, when patients have endocarditis, it will cross over and move into the mitral plane. So they have to do some debulking. But when the primary surgery is on the aortic valve, then it would just stay as an AVR and then aortoplasty done in conjunction with MVR as part of the closure, not coded. And finally MVR with reconstruction of the atrium, that's just mitral valve surgery. You have to get into the atrium and sometimes you have to do a little bit more to close it completely.

CHAT: Regarding pericardiectomy, STS has been pretty clear that they only want us to capture total pericardiectomy phrenic to phrenic, not partial.

Holly Hoegh: that's a separate data element with STS, right? They don't have our data element type of CABG that's a homegrown data element.

CHAT: they don't consider partial and exclusion to isolated CABG.

Dr. Matchison: we can align with that, that's fine. I mean, if it's stipulated as a partial pericardiectomy, we can say that that's not going to be an exclusion for us. I have no problem with that, but usually when you're talking about having to do a pericardiectomy, that means that it's either a redo surgery and there's a tremendous amount of calcification there, or the patient has received radiation, so the tissues are very calcified and fibrotic and friable. I think that any need for pericardiectomy indicates that that patient is at a higher risk. I mean, that's why we

consider it. But if the STS says a partial pericardiectomy isn't going to be an exclusion, I mean we can easily align with that and just say that's where we are.

Dottie Rudinica: We have said that a partial pericardiectomy would be included as isolated CABG and total would be excluded and I think Holly where the problem lies with aligning with the STS is we agree that we want to capture cases with the intent of going into that OR we are doing a CABG.

If other surgeries occurred during that operation, there is a data element in the STS that says unplanned procedure and you go to another list of exactly what that plan procedure is. Now, when the STS analyzes that data and reports it out, I'm not sure what would exclude reporting that case as isolated CABG.

So when we audit, we do not exclude cases where they repair the tricuspid valve while they're in there, because they had an echo.

Holly Hoegh: It wasn't in the preop plan.

Dottie Rudinica: Yes, exactly. we will defer back to what the preop plan. It was and then if it is a partial, I mean again if it was. I would say leave it, if it was a partial, we did leave it as isolated CABG when it was planned.

Holly Hoegh: I'm fine with that. We can clarify that in the training manual if everybody's on board with that. It's better if you like it. If it, well, if it's excluding it, I mean, I don't know if it if it's adding risk. Hard to tell.

Dottie Rudinica: The good news is there's very, very few of those

Holly Hoegh: so let's go with that approach, the preop plan of a partial will not excluded from isolated CABG to align with STS.

Chronic lung disease:

Dr. Matchison:

So the big departure here, and I think we have it in a future in a couple of in one or two slides down the road is the fact that we are mandating that we have documentation in the chart. Correct? But that is our approach. So we need to indicate, is there documentation by a physician in the chart that the patient has chronic lung disease and then you can go to grading it as mild, moderate, severe and the mechanisms we have to do that are the pulmonary function studies.

So FEV1 and now we have the DLCO. You can do pharmacotherapy so you can see from mild for example the pharmacotherapy is on chronic inhaled or oral bronchodilators to get into the moderate chronic oral systemic steroids and then the last data point that we have, FEV1, DLCO, pharmacotherapy or the values on the ABG are the either the PO2 less than 60 or the PCO2 greater than 50 to get into that severe lung chronic lung disease category and then the 5th is just lung disease, documented severity unknown and then you have an unknown category also.

Holly Hoegh: And before we go to the next slide, I what I want to remind everybody is when we get this data to use in our risk model, we are looking at severe versus all other. So definitely the most important one you know is that severe category, which hopefully that if it's severe there's that documentation.

Dr. Matchison: And then certainly just being a chronic smoker doesn't qualify as chronic lung disease. We've also said that just being on home oxygen doesn't qualify as chronic lung disease. So I think in the past we've said with patients who are and you can correct me if I'm wrong here, Holly, patients who are on home oxygen, but they don't have any of those other kind of risk stratifying factors in the chart, it would be severity unknown and then diagnostic testing or pharmacotherapy must be met and then chest X ray findings alone, again you can have a lot of different chest X ray findings like atelectasis and infiltrates which is pulmonary edema which are transient in nature and can resolve, so that's not chronic lung disease per se. Chest X ray findings alone don't qualify.

Holly Hoegh: I did want to add we recently added to our training manual the nice little chart that STS has in their training manual, so hopefully that helps a little bit.

Dr. Matchison: that that thing's awesome though, I really breaks it out in a really effective way.

So chronic lung disease, I mean, there's a whole slew of different reasons why patients can have chronic lung disease, but it can be your kind of prototypical smoker with COPD, chronic bronchitis, emphysema.

And then again, the pharmacotherapy portion of it. So that would be another clue or another trigger that we need to dig deeper here, patients who are on inhaled or oral steroids, beta adrenergic anti- inflammatory drugs. Patients who have asthma and seasonal allergies are not included. Obviously those things tend to be more transient in nature. Seasonal allergies are not considered to be a chronic lung disease. Asthma can reach the criteria for chronic lung disease, but they have to be on chronic inhaled pharmacotherapy for that.

And then the most recent update is we are going to be utilizing DLCO to kind of stratify these patients with that 40/60 kind of cut off. Mild chronic lung disease, you get that DLCO 60, which is below the lower limit of normal. Moderate is between 40 and 60% of predicted and then severe would be a DLCO of less than 40% of predicted.

And then just more potential etiologies for chronic lung disease. Obviously environmental exposure, chemical asbestosis, prior lung radiation therapy, they can have a radiation pneumonitis that transitions over to a fibrosis overtime. Unfortunately, again the real key here is also having some sort of ancillary data like the FEV1 or the DLCO so you can stratify these patients more specifically.

So for CCORP purposes, patients with chart documentation of chronic lung disease and then you can go ahead and get the other information to stratify them.

Holly Hoegh: So we'll have discussed this looking highlighted area with a couple of data managers and with STS about using like bedside PFT. Where there is a low FEV1 but not a diagnosis of chronic lung disease. They wouldn't go as much as putting it in their training

manual, but they really would like you to work with your surgeon or pulmonologist to determine that that low FEV1 isn't due to something else. So do your best

Dr. Matchison: this is why we want that chart documentation right? Because the FEV1 like we've talked about like Dottie, always brings up, I mean that can be spuriously low for a whole bunch of reasons, so it's kind of unfortunate.

Immunocompromised:

Indicate whether the patient was on immunosuppressive medication within 30 days. And then obviously there's a whole list of medications that can be immunosuppressants. The ones that are really obvious to the patients who have undergone any sort of solid organ transplant. They're all going to be on immunosuppressants. It can be systemic steroids therapy for patients through rheumatologic disease.

The anti rejection medications for transplant and chemotherapeutic agents, things that doesn't include are topical steroids, one time like stress dose steroids. If I give a patient steroids in the cath lab before I do an angiogram because they have an allergic reaction to iodine, those things don't factor in. I think most of the preoperative protocols for steroid administration have gone by the wayside, but if any of that's being done, those are kind of one time doses. It's not chronic steroid exposure and it's the chronic exposure that leads to the immunocompromise. Does not include knee injections and those kind of things.

Holly Hoegh: It's hard to keep up with all of the updates, but we do have some of this stuff in here and there was a recent one, I think just in September even. STS did clarify it was a typo in the STS update on lupus or rheumatoid arthritis who are taking the Plaquenil. You don't need arthritis and lupus, and the drug.

Dr. Matchison: the triple whammy there. I am working on getting the HIV AIDS CD4 versus viral load thing clarified.

Holly Hoegh: So if we have an update on that, we will put it out in our next conference call and our next training manual as well. We do our best to keep up with that one, but we just wanted to include it, because of the constant updates.

Chronic Lung Disease

Chat: How do you capture a patient who has chronic lung disease but normal FEV1?

Holly Hoegh: But documented chronic lung disease.

Dr. Matchison: I guess the question would be based on what criteria?

Chat: yes to documented.

Dr. Matchison So it's just documented in the chart, but there's no nothing else like objective.

Dottie Rudinica: I would say it would be yes to chronic lung disease and severity unknown

Dr. Matchison: so it would be treated just like we didn't have any of that information. Then just the documentation without FEV1; severity unknown. Thank you, Dottie.

Heather Homampour: For STS, they think a normal FEV1 shows that there is no lung disease unless the patients on medications or inhalers that are directed at lung disease.

Dottie Rudinica: Melinda also answered a question where a patient had chronic lung disease with the normal FEV1. We did have that information and she said that should be No to chronic lung disease. I talked to one of our pulmonologists and there's many times that patients that have emphysema will have a normal FEV1. So again, in that case I would code yes to chronic lung disease and severity unknown, not no to chronic lung disease, if it's been documented by a doctor.

Heather Homampour: At the same time, I would expect a patient with emphysema to be on medications directed at their emphysema.

Dr. Matchison: Yeah, I guess that's a good point, if they have a normal FEV1, it could mean that they're just extremely well treated and compensated. But then you would expect those medications to be in the chart somewhere.

Heidi Gee: As Heather and Dottie are giving different points of view, just be aware that the recent STS ruling on chronic lung disease documented normal FEV1 is to be coded NO. If you decide to go with chronic lung disease, yes, severity unknown, you'll be choosing to diverge from the STS.

Holly Hoegh: I'm happy to keep it at what STS does. As I noted earlier, no and the documented but unknown severity are going to be treated the same in our risk model, so I'm happy to align, just keep it as what STS has in their table there. If there's no FEV1, there's no FEV1 and no prescribed medication. Just reading I'm reading from the table here, then it's no.

Dr. Matchison: I think, especially if you're going to the same pot, let's just stay with what STS does and stay with what we have on the chart.

Dottie Rudinica: Heidi, when was that clarification made?

Heidi Gee: There was an STS call I this year within the last two or three months where. So the time when you would use severity unknown would be when chronic lung disease is documented and there is no objective PFT results. You would code CLD severity unknown per that training.

Dottie Rudinica: So this is that the issue is that they changed a definition three months ago for data that's being collected in 2023 as data managers, do we just mainstream start switching over and do the same?

Heidi Gee: I'm not sure what the training manual shows, but as Holly said, it's going to be risk stratified the same.

Holly Hoegh: I'm reading this table now. So the sample was: It's in the chart, but there's no FEV1, no meds. So we said that is no, but under documented severity unknown, it says documented lung disease, but no PFT or room air or prescribed medications. So that's documented but unknown, so I feel like they're going back on what's in their table?

Dottie Rudinica: Yeah, that makes no sense to me because what if a patient has pulmonary fibrosis, they're not on treatment. They have a chronic lung disease. They're not on a medication and nobody did a PFT. Bottom line is they still have that medical condition.

Chat: It wasn't really a change as I understand it, more of additional clarification. Melinda has been saying similar for quite a while. The STS call that clarifies this was June 7th, 2023. The STS training Manual is released monthly and we are expected to use the September training Manual for September surgical cases.

Holly Hoegh: I'm just trying to understand in their table the difference between no and if there is a documented lung disease then it goes under the documented. Regardless of whether there was, it goes documented but unknown. That's what this table says.

Dr. Matchison: Yeah, because I think on the table the no, mild, moderate and severe have nothing to do with the documentation, that's just all based on the FEV1, right?

Holly Hoegh: I would say again, let's align with the STS training manual. We'll try to keep up with that and our training manual, at least as far as this part this table is very helpful. Just a reminder to everyone, that severe is the most important to us.

Cerebrovascular Disease

Dr. Matchison: indicate whether the patient has either current or previous history of an event, either a stroke or TIA and the stroke can be ischemic or hemorrhagic in nature, and then the TIA…the difference between the two is with the TIA, there's really no residual beyond 24 hours. So all focal neurologic deficit resolves, and there's not necessarily any imaging findings either, so neuroimaging would be normal or negative. That's the events kind of diagnosis. Then you have the imaging, so noninvasive arterial imaging, usually ultrasound, like carotid ultrasound, duplex Doppler demonstrating greater than 50% stenosis in one of the major extracranial vessels of the of the brain, so the carotids or it either the main carotid or the internal carotid. The external carotid is excluded. We don't include the external carotid carries blood to the face, not to the brain.

Then also the vertebral vessels and the internals, anything greater than 50% stenosis or if they've had a diagnosis of cerebral aneurysms on neuroimaging or surgery. So carotid endarterectomy or something has been performed to resolve the situation. Previous cervical or cerebral artery revascularization.

Values: Yes, no or unknown.

So internal carotid common carotid disease are the two that are captured again. External carotid disease is not really relevant for the purposes of what we're trying to capture here. A positive CT scan should be coded as cerebral vascular disease CT scan following surgery with evidence of old infarct or chronic should be coded. So we're using neuroimaging alone to code yes, for history of cerebrovascular disease. Unknown when there's conflicting information in the record. Disease at the carotid bifurcation can be captured. That makes sense. It just means both vessel distributions are compromised. If it's at the bifurcation. Vertebral artery image and testing demonstrating greater than 50% stenosis is captured. Patient with prior left vertebral

occlusion with distal you can't reconcile reconstitution reconstruction can be coded. That's just revascularization essentially.

Prior myocardial infarction and MI When:

So one documented previous MI at any time prior to surgery. So the big thing here from my standpoint is old MI on an EKG, you can not code Yes with that. So EKG alone cannot be used to code. Yes, without confirmation in the medical record, I think that's extremely important. I think this is what we kind of struggled with during the last meeting, the timing and what we were going to use as the onset of the myocardial infarction.

So you can see 6 hours, 6 to 24 hours and then days out. The big ones are one and two, right? Within six hours and within 24 hours. So the question was, what constitutes the onset of the myocardial infarction? What starts that clock ticking? I think as we left it, we said the first troponin elevation and not the first to onset of symptoms, but we need to have that conversation and kind of iron that out.

My thought on this, I guess that's why I'm here is I mean, I have patients who have chronic stable angina that won't have troponin elevations. I have patients that I see that have stuttering chest discomfort for days before they present to the to the emergency room. So it's kind of difficult to say and then they'll come in and they'll have a troponin elevation. I think it's really difficult as far as that specific timing or patient says that I've had chest pain for the last… since last night and something very vague and ambiguous. That's why I kind of like just the troponin elevation because it's objective, it's hard and fast and it's in the chart and it doesn't require any sort of extrapolation.

Dottie Rudinica - Can you also use an EKG, what about when a patient comes in with a STEMI in their troponins have not elevated yet?

Dr. Matchison - Well, I would say now with these high sensitivity troponins, that's going to be extremely unlikely. All of these patients have troponins that are elevated.

Chat: Sequence 890. MI occurrence…Is the time of diagnosis and/or when confirmation of the last MI is documented prior to surgery?

Dr. Matchison: For me, the confirmation comes with the troponin, right? The troponin is what confirm or makes the diagnosis. Obviously, a lot of different reasons for patients to have chest discomfort, but that's the troponin elevation. That would be my thought.

Vicki Silvius - in the STS manual they updated it and they said a formally read and signed EKG by a provider is acceptable.

Dr. Matchison: Is acceptable for what?

Vicki Silvius: history of prior MI, it's on page 56, sequence 885. a formally read and signed EKG is acceptable documentation for history of prior MI

Holly Hoegh: Of the prior, am I but not the timing?

Vicki Silvius: Correct.

Dr. Matchison so are we OK using the first elevated troponin as the onset?

Dottie Rudinica: It's going to be the most reliable.

Holly Hoegh: No opposition.

Chat: though that dialysis patient's troponin are always high

Holly Hoegh: That would be one to send to us for further clinical review.

Heart failure:

Dr. Matchison: indicate whether there's physician documentation of the patient being in a state of heart failure. So this is the symptom driven diagnosis. It's always the Class 1, none, some, a lot and always.

So you can kind of get a sense of what would constitute Class 1 symptoms here pretty much without any sort of limitation with ordinary physical activity. So that's none. Class 2 is some comfortable at rest, usually physical activity, just ordinary stuff. Can invoke a little bit of a limiting symptoms and fatigues or palpitations, walking a few blocks. Those kinds of things.

Holly Hoegh: What happened to three and four? The New York class three and four disappeared from the slides. I'm sorry.

Dr. Matchison: Class 3 is a lot of symptoms and then Class 4 is essentially they live in a decompensated heart failure state and so this is another one where really Class 4 is the most important thing to capture.

Holly Hoegh: There's a lot more information in the training manual and the note from the auditors today, they've been auditing all week. They have yet to have any documentation on classes, so encourage your cardiologist to get the information in there.

Cardiogenic shock: just a reminder, CCORP does require the documentation if you do code cardiogenic shock.

Dr. Matchison: It's a condition of end organ hypoperfusion, right. For the purposes of documenting it, would be a sustained period of hypotension greater than 30 minutes. So end organ hypoperfusion with systolic blood pressure less than 90 millimeters of mercury. If the patient is in the cath lab, maybe they have a swan in and you have those numbers also. So cardiac index of less than 2.2 meters per minute per meter squared would constitute cardiogenic shock, so it's either those hemodynamics or the patient is actively being treated for shock. And this is where it kind of gets a little bit of gray area. They're either on inotropic support, so dopamine, dobutamine, levophed, vasopressors and those kind of things or they require a mechanical support. Anything from an intra aortic balloon pump to an Impella CP or an Impella 5.5, all the way up to ECMO in order to maintain blood pressure and cardiac index and output above those kinds of aforementioned thresholds of 90 millimeters of mercury systolic.

Coded as either No, Yes, at the time of the procedure -literally patient is in shock, being wheeled into the OR yes, not at the time of procedure. So they've been stabilized, but within 24 hours of the operation and then just to be real specific, at the time of procedure is defined as entry into

the OR so and you don't code anything after the induction of anesthesia, anesthesia can push people into a cardiogenic shock state, unfortunately.

The blood pressure less than 90 or the cardiac index less than 2.2 or they met those thresholds and then the physician instituted some sort of therapy either pharmacologic or mechanical support in order to get the patient out of shock essentially.

Patients left on inotropes, whose blood pressure has markedly improved. So it's clear blood pressure.

This is the patient who required an intra aortic balloon pump and inotropic support in the cath lab, but then came out of the cath lab and was stabilized and they were able to wean the inotropes and the patient now has a blood pressure of 140. They leave the intra aortic balloon pump in because of patients on an intra aortic balloon pump doesn't mean that patient is in shock. The other thing here is just having an intra aortic balloon pumps in doesn't mean the patients in shock.

So sometimes we'll put intra aortic balloon pumps in for patients who have ventricular arrhythmias or patients who have really high grade, extremely risky coronary artery disease like left main stenosis and those kind of things. The surgeons will actually ask us to place those up front in anticipation of induction of anesthesia. So you have to really make sure that that's not the clinical context under which the patient has the balloon pump in place.

Transient episodes of hypotension.

Anything that reverses like I had a patient today who was hypotensive, but they were hypotensive because they were in complete heart block. So you put in a temporary pacing wire and the complete and the hypotension resolves, and it's an electrical issue. It's not a hemodynamic issue.

So those patients shouldn't be coded. Anything where anybody who responds to fluid and normalizes is not in cardiogenic shock for the purposes of this.

Chat: but can it be less than 30 minutes if pressers or support started within 30 minutes and required?

I've always had an issue with that. As an interventionist, I'm not going to wait 30 minutes. if somebody's hypotensive, the purpose is to get them out of that shock state as soon as possible. I think I've reviewed a couple of cases where it was less than 30 minutes, but that's because the operator did what they were supposed to do by placing an Impella or something like that. You might have a different take on this, but me as a practitioner that 30 minute threshold doesn't make any sense.

That's why we send them to you for review.

Chat: What about patient and CCL with blood pressure less than 90? Less than 30 minutes, but solved with Impella.

I would say that patient was in cardiogenic shock with and hypotension and the interventionalist recognize that and placed an Impala. So I would call that shock. Sorry about that.

Number of Diseased Vessels

Holly Hoegh: We have clarification from STS on this, there was some misunderstanding. Thank you, Heather Homampour and thank you, Melinda. This green part is accurate for the data element, number of disease vessels.

Dr. Matchison: So number of disease vessels and indicate the number of disease vessels, then STS breaks out into three different blood vessel distributions. You have the right coronary artery and then you have the LAD and the circumflex that are responsible for perfusion to the left side of the heart.

So you're never going to have more than three disease vessels. Sometimes the ramus is a little bit of an issue, so the ramus is a branch that comes off literally between the LAD and the circumflex. I don't know if we have a picture or not, but it can coarse the territory of either the branches of the circumflex or the branches of the LAD.

The branches of the circumflex are called of those marginals, and the branches of the LAD are called diagonals. So the goal here is to code for the highest number of diseased vessels possible. So the example we always give is a patient has high grade disease in an LAD and high grade disease in ramus. If that's the case, then you would attribute the coronary perfusion, the area of profusion from the ramus to the circumflex. Then you would say that's two vessel disease because there's disease in the LAD distribution and disease in the circumflex distribution and the converse is true also. So if you have disease in the circumflex and disease in the ramus, you would call that two vessel disease also.

But the justification being that you're saying that the ramus courses in the distribution of the diagonals which are the branch vessels for the LAD. So, these can always come to me and I can look at it, this is kind of straightforward to me, but it can be a little bit little bit confusing because of the anatomical variation here.

My bigger issue, and we can talk about that more, STS is saying that if a patient has a stent placed in a right corner artery and that stent is 100% open, widely pay in, you would still call that a diseased vessel.

Holly Hoegh: That's what we're doing in the in the follow up individual vessel information they collect for STS. CCORP only collects left main and they treat it slightly different. But this if for the purpose of this data element. I actually spoke to Heather Homampour about this and heard from STS.

So once diseased always diseased, that we will align with STS

And we have STS clarification on this one as well.

Chat: but then you document the percent stenosis.

Yes, the percent stenosis is in the following data element, we're not going to cover those today.

We did modify our training manual. Some of the confusion was STS had this section regarding general information coronary artery stenosis. It was below the number of disease vessels. We had it in our training manual with the number of disease vessels, but STS wants to apply that

general information only to those breakouts of the different vessels. So you can read that more in our training manual, we can discuss it also on a future call. Because it might take some time and maybe even we could do it on the Eddie call next month and then one more comment before we leave that data element.

Chat: Is that correct for CCORP sites only? No, that is correct for every that is a from the STS training manual.

Once disease always diseased that what it is for STS we're aligning with STS.

Incidence:

Incidence is pretty straightforward. You don't count percutaneous things, however, it does come into play if you're redoing the same valve that have been done in a transcatheter approach. Then you get to count it.

Dr. Matchison: I think that the two big things here, one the surgery has to be a surgery on a previous transcatheter placed valve. So either a transcatheter mitral or transcatheter aortic and you have to be going in to do another procedure on that same valve. The issue is that there is a ton of fibrosis and scarring and inflammation. So it's really difficult for these surgeons to go in and remove these percutaneously placed valves. It's a lot of work and according to some of the surgeons I know, it's harder than taking out an old surgical valve just because of the way these valves are placed. They become enmeshed essentially in in the tissues of the aorta. The other thing is that the mitral clip does not count. So you can go in, you can do a mitral clip and then have that fail and have a patient need to go for a surgical MVR. That is a first surgery for that patient.

Holly Hoegh: Just one note here something that might show up as a warning in CORC, but that's OK

Status: Let’s skip status. Just a reminder that we do require the documentation for salvage.

Stroke:

Dr. Matchison: Indicate whether a patient has a postoperative stroke, so confirm neurologic deficit. It can be confirmed on imaging, but we've also said the imaging is not necessary to make the diagnosis and a stroke is neurologic deficit that doesn't revolve resolve within 24 hours. We want to capture all of these post operative strokes, which are obviously a very, very important metric.

Central events are caused by embolic or hemorrhagic events, it could be either a bleed or a cardioembolic for example. Then there's other like neurologic deficits, confusion, delirium.

ICU sycosis happens with these patients, unfortunately. Let's just address the hematoma topic.

Heather Homampour: I did ask this question of the STS Core Committee and subdural hematoma is not a stroke per them and but you know it did to spark some discussion and they've put it on the table for possible data element if we upgrade.

Holly Hoegh: so on record CCORP is going to align with STS then. Hopefully they consider this in the future, but for the current data we are not going to call the subdural hematoma a stroke.

Denise Stanton: Thank you everyone for joining us. Have a great night.