Pioneers in Quality Electronic Clinical Quality Measure (eCQM) EtoE Webinar Series

VTE-1 and VTE-2 eCQMs

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Lisa Anderson: Hello, everyone.

I'm Lisa Anderson, the Project Director for eClinical in the Department of Quality Measurement at The Joint Commission. I would like to thank you for joining us for our Pioneers in Quality: 2018-2019 Expert to Expert series. Today we will be focusing on VT1 and VT2 eCQMs.

Participants that would like to use the Closed Captioning service, please see the link on this slide. This information is also accessible via a "Participant" pane in the "Go to Webcast" platform.

The Joint Commission and CMS designed the Pioneers in Quality Expert to Expert series to support hospitals adopting electronic clinical quality measures and transitioning to the new Clinical Quality Language or CQL. We introduced this series with a CQL Basics webinar followed by sessions covering the stroke, AMI, and ED eCQM. Based on participant feedback, we have extended the webinar sessions to 90 minutes, dedicating the first hour to the content review and the remaining time to a live Q&A session.

At the end of today's session, participants will be able to apply concepts learned about the new CQL Expression Language for VTE-1 and VTE-2, identify their common issues and questions, and prepare to implement CQL for the 2019 eCQM reporting year or 2020 data submission.

The slides are available in the "Event Resources" pane. Click the triangle to open the list. Once selected, you will be able to download and print the slides. These sessions are designed to be interactive. The "Questions" pane will be open throughout the presentation to ask questions and view responses in real time. If possible, please indicate the slide number you are referencing in your question. Additionally, you can visit links or resources noted on the screen.

Please note, a recording of today's presentation, the slide deck, and Q&A documents will be available on The Joint Commission website in March. We hope you find this information helpful and share it with interested colleagues.

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I am now going to turn it over to Mia and Karen to begin the presentation.

Karen Kolbusz: Thank you, Lisa.

Hospitalized patients are at risk for developing venous thromboembolism...either a blood clot in a deep proximal leg vein or a pulmonary embolism which can result in sudden death. Prevention is critical for reducing VTE-related mortality. According to the CDC, nearly 560,000 patients age 18 years and older are hospitalized in the United States each year for VTEs.

Critical care admission is the strongest factor for developing a VTE while hospitalized, and systemwide alerts are being used to increase VTE prophylaxis administration during the hospital stay. The electronic clinical quality measures, VTE-1 and VTE-2, focus on the prevention of deep vein thrombosis and pulmonary emboli. These measures capture the proportion of patients who receive pharmacological or mechanical VTE prophylaxis or have a documented reason why prophylaxis was not administered. Patients who are not at risk for VTE or low risk for VTE are included in the numerator.

Now I'll turn it over to Mia.

Mia Nievera: Thank you, Karen.

Before we dive into the measure specifications, we'll take a few minutes to do a high-level overview on the Clinical Quality Language, CQL. It is a new language used to create the measure specifications. The goal for today isn't to teach you how to write CQL but to help familiarize you with the CQL terminologies to better support your organization. If you've been following this series, we haven't been technical in nature; but with CQL, it is important to understand the technical aspect as they do impact the clinical intent of the measure. So this is a lot of content; but please remember, these sessions are being recorded and will be accessible to watch again.

All right, so let's go ahead and get started with some of the CQL basics... (inaudible) foundation. This diagram is one of the ways we represent the evolution of the standards when creating the specification for eCQM. There are three components to the eCQM. The first is the metadata. The HQMS or Health quality measure format is the basic electronic specification for the measure. In other words, the metadata and the population structure.

Second, you have the data model...the QDM...which is the data model used for 2018 and 2019 reporting. Third is the logic. We used the QDM for the logic in 2018 reporting; however, as of January 1, 2019, we transitioned the logic from QDM to CQL. The transition to CQL has been a big undertaking, but it does have its benefits. From a technical standpoint, CQL simplifies the logic...making it easier for the system to compute. But more importantly, from a clinical perspective CQL allows for more flexibility in the logic. It also has better timing position so that the logic can be better aligned with the clinical intent of the measure.

This is a screenshot of the human readable file. For those that are new to eCQMs, a human readable is the file format of the measure specifications that a person can read. The first thing I want to point out is if you look under the initial population, it's only referring to the line "TJC.encounter with principle diagnosis and age." So this is a major difference from the QDM version, where you had lines and lines of logic stated. With CQL, the logic is simplified into what we call "definitions," and that makes it easier to read. We title these definitions using more of a natural language to capture the meaning of the logic it represents and then use these definitions to build each of the population criteria.

The second thing to note is the "Definitions and Function" sections. These are bracketed together; and these act like building blocks, which I'll talk about a bit more on the next slide. But collectively, these are all the definitions used to build the population criteria here at the top of the page.

To give you a better understanding of the CQL structure and a CQL definition, this diagram depicts a visual representation of a very simple construct for the initial population. So if you imagine with me for a moment that you have a set of Legos and if you've never played with them before, you're given a book of directions which instructs you on how to connect several blocks together in order to build some sort of structure.

Well, we can take that same concept into CQL where we have the clinical specifications as directions to build definitions. Those definitions are like Legos or building blocks, where we use one definition to build upon another definition until you have a completed structure. So looking at the diagram, the definition we're building is the initial population, which is defined as "C." Now remember, each block then represents a definition; and each definition has a name and logic to represent a population parameter.

So in block "A," this is looking for a specific encounter text; for example, an inpatient or an ED encounter. You'll also want to note that "A" is the largest block to represent the largest patient population. So the idea is as we start building our population criteria, we want to start narrowing down the patient population. So now in block "B," rather than repeating encounter logic again, we can simply pull in definition "A" into the logic and then add the next criteria we're looking for...in

this case, a diagnosis. This is how we connect the definitions together...by nesting one into the other. So then definition "B" now includes the encounter type and the diagnosis.

Now, to complete the structure we need an age block, so to speak. We follow that same pattern where we connect "B" with age to connect "C." Hopefully this helps to show how we build off of a definition so that each successive definition helps to further constrain the logic. Now in "C," we have all the criteria we've defined...the encounter type, the diagnosis, and the age of the patient. That's how "C" becomes the initial population.

Looking at this concept in more concrete terms, here in step 2 we have three definitions to build that initial population. To start, we have a TJC. non-elective inpatient encounter; and we're looking for an encounter type of non-elective inpatient encounter. In the next block, TJC All Stroke Encounters, notice how we pull in the definition title, Non-Elective Inpatient Encounter, and then add diagnosis criteria for hemorrhagic and ischemic stroke.

Then in the next block up, "Encounter with Principle Diagnosis and Age," again we pull in "All Stroke Encounter" into the logic and add age criteria. So then in the population criteria, we use "Encounter with Principle Diagnosis and Age" directly as the initial population. You can see in real terms how complex a definition can be if we were to try to squeeze all this logic into one statement.

Now, there are a lot more terms used in CQL; but these are just some of the basics. As I mentioned, CQL uses definitions; and all definitions have a name, and that name should encompass the meat or the meaning of the definition and should be unique so we can identify it with a library. Libraries are created at the measure level, so each measure builds its own library of definitions as they are written. We also have global libraries that can be shared across all measures, which is the purpose of creating libraries...so that we can easily share definitions across measures rather than restating each time.

So to identify if a definition is coming from a library, we use a library alias. If you look at the yellow highlight, a library alias is denoted as a prefix in the name of a definition. Although some definitions may not come from a specific library, you will not see that denotation.

Next, we have an expression. An expression refers to the content of the definition, which we use quite a bit throughout the logic. An expression refers to the content that we're referring to in the logic. Looking at the basic construct of an expression, expressions use datatypes. Datatypes describe a part of the clinical care process which refers to a specific category in QDM. For instance, the encounter perform datatype used in this example is in the "Encounter" category. A medication administered datatype would belong to a "Medication" category.

Each datatype has their own set of attributes, and attributes provide specific details about their datatypes. In the example, that relevant period is an attribute of the "Encounter Perform" datatype, meaning the relative period is used to define a start and end time for the encounter.

Next, we have a value set which defines or specifics the kinds of data codes that we are looking relative to the QDM category. Ultimately, these are the codes in

the logic we're looking for within the EHR. In this example, the value set of "Non-Elective Inpatient Encounters" consists of a (inaudible) code. To satisfy that logic, we would expect to see that (inaudible) code somewhere in the patient's record.

Lastly, we have aliases. Aliases and expressions are used to give a source a name so that logic can be referred to easily within the expression to avoid restating. We try to be very concise and meaningful so that it makes sense to the reader. You'll be seeing this often throughout the measure specifications.

Just briefly, there is a "Terminology" section in the human readable where you can see all the value sets and direct reference codes used in the measure. The Value Set Authority Center is where you would go to verify the codes listed in each value set. We use a unique object identifier, which is the quickest way to locate the correct value set.

One of the most common questions we get is...What does "union" mean?

Union is a CQL operator; and it's used to combine two or more lists together. Looking at the diagram on the left, any element in list "A" or list "B" will satisfy the condition...so anything in red. And just to clarify what "lists" are, lifts are the results of what the logic is looking for in the EHR. Again in the example, the logic is combining a list of all diagnosis codes that represent each one of the diagnoses listed. What union does is it combines these lists so that if the patient encounter has any of the diagnosis codes from this list, it will satisfy the condition.

Another common operator in CQL is "intersect," which is only looking for the common elements between list "A" and list "B." So in the diagram, the red depicts the shared elements between the two lists. To add some context, let's look at the example. If list "A" returns a list of all inpatient encounters with age 18 years and older and list "B" returns a list of all encounters with a CBC level, then the result of this intersection is a list of all inpatient encounters, age 18 years and older, *and* a CBC level.

So that takes us to the end of our CQL basics. Let's transition back into the measures here in slide 23. Both VTE-1 and VTE-2 share the same initial population and it reads: "Patient age 18 and older discharged from hospital inpatient acute care without a diagnosis of venous thromboembolism or obstetrics with a length of stay less than or equal to 120 days that ends during the measurement period." The definition for the initial population is "Encounter with age range and without VTE diagnosis or obstetrical condition."

To build this initial population, we used two blocks of definitions: Global."Inpatient Encounter" and "Admission Without VTE or Obstetrical Condition." Let's start with Global."Inpatient Encounter." Global is an alias for the Global Common Library, which stores the definition of "Inpatient Encounter." So it's commonly used across many quality measures. This logic looks for an inpatient encounter, so the patient must have one of the encounter codes from the "Encounter Inpatient Value Set" to meet the condition.

We use a CQL function, "Length in Days," to calculate the inpatient encounter to be 120 days or less. The dot relevant period is an attribute that defines the start and end date times of a given time frame. So the logic is saying the relevant

period for the inpatient encounter needs to be 120 days or less and must also end during the measurement period.

In the next definition, "Admission Without VTE or Obstetrical Conditions," this definition starts with Global."Inpatient Encounter." It is the base source for the initial population; so for ease of reference, we assigned it an alias, "Inpatient Encounter." You'll notice highlighted that the "Inpatient Encounter" is referenced throughout the expression.

In the first part of the expression, the logic is looking for an "Inpatient Encounter" that does not have an encounter diagnosis of obstetrics, VTE, or obstetric VTE. An "Encounter Diagnosis" is an attribute of the "Encounter Performed" datatype. So the timing for this attribute is not important because it's already tied to the encounter.

In the second part of this expression we are also looking for an inpatient encounter that does not have a diagnosis of obstetrics, VTE, or obstetrics VTE. The difference here is that we're using the "Diagnosis" datatype. We use union here to combine all three diagnoses value sets. So again, any of these diagnoses will meet the condition.

The "Attribute Prevalence Period" is the time period between diagnosis onset and abatement or end time, so we're looking for the onset to occur during the hospitalization. In the logic, we use the "Hospitalization" function to determine the hospitalization time frame. So this is the logic for the "Hospitalization" function and a picture to help illustrate the "Hospitalization" time frame. "Hospitalization" is defined as the start of an ED visit to the end of the inpatient encounter, so that's through discharge. So if an ED visit does exist, then the ED discharge time must be one hour or less before the start of the inpatient admission. If no ED visit exists, then the "Hospitalization" begins at the inpatient admission start date time.

Going back to the measure now, the "Diagnosis Prevalence Period" can start any time during the hospitalization, including if the patient was in the ED. By using intersect, if you recall earlier in the presentation, this is like an "and" statement. So the logic is looking for inpatient encounters that do not have obstetrics, VTE, or obstetrics with VTE as an "Encounter Diagnosis" and as a "Diagnosis" datatype.

In the final definition, we use a function called "Calendar Age in Years At" to calculate the patient's age at the time of the start of the encounter; in other words, the patient needs to be 18 or older by the start of the admission. Again, we use the intersect operator because the logic is looking for encounters that satisfy both age and diagnosis conditions to qualify for the initial population. So now with all the criteria defined, "Encounter with Age Range and Without VTE Diagnosis or Obstetric Conditions" becomes the single definition for the initial population.

Once a patient qualifies for initial population, the process moves to the denominator. Although VTE-1 and VTE-2 have the same initial population, the denominator changes between the two measures. In VTE-1, the denominator includes all patients in the initial population. For VTE-2, the denominator is defined to include only direct admits or transfers to ICU at any time during the hospital stay.

So let's begin with VTE-1. This denominator reads "All patients in the initial population," because the denominator doesn't change from the initial population. We can simply call in initial population as the definition itself. By doing that, we carry through all the definition from the initial population into the denominator, as denoted here in the yellow box. So the definition, "Encounter with Age Range and Without VTE Diagnosis or Obstetrical Condition" becomes the qualifying encounter to continue moving through the measure algorithm.

Moving on to the denominator exclusion tier on slide 37, it reads:

Patients who have a length of stay less than two days

Patients who are direct admits or transferred to ICU on the day of or the day after hospital admission with ICU length of stay greater than or equal to one day

Patients with a principle diagnosis of mental disorders or strokes

Patients with a procedure who skip VTE-selected surgery

Patients with comfort measures documented any time between arrival and the day after hospital admission

Patient with comfort measure documents by the day after surgery and (inaudible), the day of or the day after hospital admission

By using union, if a patient needs any one of these six exclusions, this patient will be excluded from the denominator.

So looking at the first exclusion, "Encounter Less Than Two Days," we begin with "Encounter with Age Range and Without VTE Diagnosis or Obstetrical Condition Because of the qualifying encounter." Since we'll be using this throughout the measure, we give it an alias of "Qualifying Encounter" rather than repeating the long definition name. We use the "Length in Days" function to calculate the length of stay...less than two days.

Now, on slide 40 looking at the second exclusion..."Encounter with ICU Location Stay One Day or More." We use the attributes of dot facility location, dot code, and dot location period to identify an ICU stay. This is a new function in the VTE/ICU library and is used several times across a VTE measure, so it's good to know. This is the calendar of or day after function, which covers the time frame between the start of the encounter and one calendar day after the encounter.

So putting it all together, this logic is looking for a qualifying encounter that has an ICU stay greater than or equal to one day where the ICU location starts the day of or day after the encounter starts.

In the third exclusion, the "Encounter with Principle Diagnosis of Mental Disorders or Strokes," we use the "Principle Diagnosis" attributes to look for mental health diagnosis, hemorrhagic/ischemic stroke.

Moving to the four exclusion, "Encounter with Principle Procedure of Skip VTE-Selected Surgery," in this expression we call out another definition..."Skip VTE-Selected Surgery"...where it combines all the surgical procedures highlighted into

one (inaudible) so that if any of these procedure codes are captured in the EHR, it will meet the condition.

In this next definition, by using the attribute of "Ordinality in Principle," we're looking for a principal procedure within the "Skip VTE-Selective Surgery" list; and the procedure must also occur during the encounter.

In the fifth exclusion, "Intervention Comfort Measures on Day of or Day after Start of Hospitalization," the definition calls out another definition..."Intervention Comfort Measures." In this definition, it combines two datatypes...intervention orders and intervention performed...using the same value set of "Comfort Measures." "Author, Date, Time" is a common attribute for both intervention order and intervention performed. It's the timestamp of when the intervention measure, comfort measure order, or documentation was entered. But relevant period is only associated to the infection performed...meaning relevant period is a timestamp when the comfort measure occurred. Therefore, the logic uses COALESCE to look for these timestamps.

We first look for "Relevant Period from Infection Performed." If relevant period does not exist, then the logic looks for author/date/time when the comfort measure was documented. So then we're looking for comfort measures to occur on the day or day after start of hospitalization. Notice we use that "Hospitalization" function again.

Now in the last exclusion, "Intervention Comfort Measures on Day of or Day After Procedures," and this definition uses a sum where and return structure. This structure is used for a multisource query...meaning there are multiple sources and relationships that need to be correlated in the logic. For example, in this logic we have to relate three sources...the qualifying encounter, the anesthesia procedure, and the comfort measures. And you'll see that we use this structure repeatedly across the VTE measure, so it is important to point out.

Now, here in slide 52 we have two timing relationships to consider in this definition. The first...this logic is looking for surgery to end the day after the hospital admission. Secondly, the logic is looking for comfort measures to be performed or documented one day on or one calendar day after the surgery end date. So putting it all together, the logic is looking for a patient that had a procedure that ended one day after the start of admission *and* comfort measures documented on the day of or one calendar day after the procedure ends.

Moving on to the numerator, which is looking for:

Patients who receive VTE prophylaxis the day of or the day after hospital admission, the day of or the day after surgery end date...so for surgeries that end the day of or the day after hospital admission

Patients who have documentation of a reason why no VTE prophylaxis is given between arrival and hospitalization admission the day of or the day after hospitalization admission, the day of or the day after surgery end date...so again, for surgeries that end the day of or the day after hospital admission.

To make this easier to understand, we've broken down the definitions out into five conditions for the numerator population. At a high level, the first condition is looking for patients who received VTE prophylaxis the day of or day after

admission or procedure. The second condition is looking for patients who received oral Factor Xa inhibitors. Notice the intersect, which means that they must also have a diagnosis of a-fib or VTE or a hip or knee replacement surgery.

Conditions 3, 4, and 5 are looking for reasons why a patient did *not* receive VTE prophylaxis. So the whole block is looking for a patient who has either a qualifying diagnosis, a qualifying surgery, received medical medication, oral Factor Xa inhibitor on the day of or day after admission or procedure. So if the conditions are satisfied, the patient will be in the numerator population.

The first part of the numerator focuses on patients who receive VTE prophylaxis, so we'll start with VTE prophylaxis received on day of or day after admission or procedure. To do that, we need to first look at the VTE prophylaxis by medication administered or device applied. This logic combines the eligible, pharmacological, and mechanical interventions for VTE prophylaxis. We use the "Medication Administered" datatype to determine if any of the four medications highlighted were given. One thing to note that the low-dose (inaudible) Heparin must also be given sub-Q. So we use an attribute of route here to identify that.

We then use the "Device Applied" datatype to determine if any of the three mechanical interventions were applied. So again, if any of these interventions...whether they are mechanical or pharmacological...was given. Then it would satisfy the logic.

Now moving up into the next definition here in slide 58...we received several questions about this timing. The measure intent is learning for VTE prophylaxis to occur during an inpatient encounter. So the logic does not allow for prophylaxis to be given prior to the admission day/time. With that said, there are two different timing conditions that are unioned together. Either timing condition will satisfy the numerator.

The first condition is looking for VTE prophylaxis to start during the day of or the day after the encounter. You'll notice, we use the calendar day of/day after function again that I discussed earlier.

The second condition is looking for VTE prophylaxis to start during the day of or the day after the end of the procedure *and* that the procedure ends one calendar day after the start of the encounter. These two timing conditions are repeated throughout the numerator, as you'll see in the upcoming slides.

Within the second condition, we have three definitions; and we'll begin with "Medication Oral Factor Xa Inhibitors Administered on Day of or Day After Admission or Procedure." In this logic, we're using the "Medication Administered" datatype, which is looking for the oral Factor Xa inhibitor to be administered. Again, it's unioned into the same timing conditions we just previously discussed.

The second definition, "Encounter with Prior or Present Diagnosis of Atrial Fibrillation or VTE"...this definition is unioned into three expressions; any of them will satisfy the logic. The first expression is looking for atrial fib as a diagnosis datatype that starts on or before end of encounter. Basically, it's looking for a history or concurrent AFib. A second expression is looking for an encounter diagnosis of AFib, which is an attribute of the inpatient encounter. So it occurs *during* the encounter.

The third expression is looking for a "Diagnosis" datatype of VTE and the prevalent period to start *before* the start of encounter, which is referring to a history of VTE.

The last definition in this condition is "Encounter with Prior or Present Procedure of Hip or Knee Replacement Surgery." It's using the "Procedure Performed" datatype to see if a hip replacement surgery or knee replacement surgery was performed on or before the end of the encounter.

Moving into the third numerator condition, we transition the focus now to patients who have a reason for no VTE prophylaxis. This condition of low risk for VTE or anticoagulant administered is a union into three definitions using three timing conditions: during the ED visit, on the day of or day after admission, and the day of or after procedure.

The first definition refers to an ED visit; and the logic here is pretty straightforward, where we're using the "Encounter Performed" datatype. In the next definition, as the title speaks, the logic is evaluating two things...one, is the patient a low-risk for VTE and, two, is the patient on an anticoagulant?

In the first evaluation, the logic is looking for either a low-risk VTE risk assessment or an INR test result greater than 3.0. For the VTE assessment, it's using the attribute of author/date/time; and for the INR result, it's using the result date/time attribute.

The second evaluation is looking to see if the patient is on any of the anticoagulant medications listed in the three value sets... including (inaudible) Heparin with an IV route, direct thrombin inhibitor, and glycoprotein IIb-IIIa inhibitors. The relevant period is the timing used to determine the medication administration time stamp.

Now here on slide 69...in this logic, we pull in the two previous definitions and add timing. So the ED has to end one hour or less on or before the start of encounter and any of the low VTE assessments or medication administration has to be done while the patient is in the ED to meet this condition.

In this logic here on slide 70, we're looking for a patient in low risk for VTE or an anticoagulant on the day of or day after inpatient encounter. Here we're looking for a patient in low risk for VTE or an anticoagulant on the day of or day after a procedure and that the procedure ends the day *after* hospital admission...same time and condition we just previously discussed.

Moving into the fourth numerator condition...no VTE prophylaxis due to medical reasons. At a high level, a clinician needs to address a medical reason for both pharmacological and mechanical VTE prophylaxis not done. So we use intersect to satisfy both conditions to pass the numerator. Then we union the three timing conditions of during the ED visit on the day of or after admission and the day of or day after a procedure where any will satisfy the numerator.

Let's start with the pharmacological VTE prophylaxis. The logic is looking for any of the medications not given or ordered. In this definition, we use the negation rationale attribute which looks for a medical reason why VTE prophylaxis was not done. We also use the author/date/time attribute, so the documentation must

occur during the ED visit. Note, we use the same ED timing of one hour or less on or before the start of the encounter.

Now let's talk about the mechanical VTE prophylaxis here in slide 76. The logic is looking for any of the highlighted devices not applied or ordered. In this definition, we use the same negation rationale and medical reason and the same timing conditions as the pharmacological VTE prophylaxis not done; but it applies to a device not done, so we would use that same timing.

Now, there's a frequently asked question about ambulation that I want to clarify. Reasons for no pharmacological and no mechanical VTE prophylaxis must be explicitly documented and linked with VTE prophylaxis. For example, a statement like "No VTE prophylaxis, patient ambulating" is an acceptable reason for no mechanical prophylaxis. However, ambulation alone or statements like "Patient fully ambulatory" are not sufficient reasons for no mechanical prophylaxis. So the linkage with VTE prophylaxis is needed.

Now on slide 78, in this next set of definitions we use the same concept for medication not done and device not done that we just reviewed. So I want to focus on the differences, which is in the timing condition. For both of the medication and device not done, we use the same negation rationale and medical reason which has to be documented on the day of or the day after hospital admission.

Moving to the next set of definitions, we continue to use the same medication and device-not-done concept. Again, for both of the medication device not done we use the same negation rationale and medical reasons; however, this has to be documented on the day of or the day after a procedure and that procedure must end one day after hospital admission.

Before we move on to the next condition, I want to clarify a couple of questions we've received. The first is: When using "Medical Reason for No VTE Prophylaxis," you have to address both medication and device not done to pass the measure. Second is when negating medications and devices not done applies to the general list. It's not tied to a specific med or device, so all you need is a code from the "Medical Reasons" value set to satisfy the condition.

All right, so now here on slide 82, the last numerator condition is "No VTE Prophylaxis Due to Patient Refusal." So just like the "Medical Reason," this is looking for a patient refusal for VTE prophylaxis as not being done. But if you notice, the same three timing conditions are repeated.

In this definition, we are looking for the "Patient Refusal" for the medication not done or the device not done. Since it uses union, either one will pass the numerator...unlike the "Medical Reason," which requires both.

Now we add the same ED timing to "Require Patient Refusal," which has to be done during the ED visit. This definition is looking for the "Patient Refusal" documentation to occur on the day of or day after hospital admission. Here in this definition, it is looking for the "Patient Refusal" documentation to occur on the day of or day after procedure and that the procedure ends one day after the hospital admission.

That takes us to the end of VTE-1. So let's go ahead to VTE-2, Intensive Care Unit, VTE Prophylaxis. We already know that they share the same initial population, so let's move on to the denominator.

The denominator is assigned to only include direct admitted or transferred to ICU any time during the hospital stay. The population reads, "Patient Directly Admitted or Transferred to ICU During the Hospitalization Stay." The definition..."Encounter with ICU Location." If you recall the yellow box, these are the definitions from the initial populations which do carry into the denominator to build that qualifying encounter.

Moving on to the VTE-2 denominator exclusion...it reads:

Patients who have a length of stay less than two days

Patients with a principal procedure of "Skip VTE Selected Surgery" that end the day of or the day after ICU admission or transfer

Patients with comfort measures documented any time between arrival and the day after ICU admission or transfer

Patients with comfort measures documented by the day after surgery and date for surgery that end the day of or the day after hospital admission.

By using union, a patient needs any one of those conditions to be excluded from the denominator.

Moving to the first exclusion, we pull in the qualifying encounter with an ICU location stay; but in the final definition, the "Length in Days" calculation is actually referring to the hospital stay to be less than two days.

Here in the second exclusion, "First ICU Stay with Principal Procedure of Skip VTE-Selected Surgery," we use the same ordinaling principle for the "Skip VTE, Selected Surgery" used in VTE-1 which defines the seven eligible surgeries. The difference here is in the timing, where we use a function of "Day of/Day After," which means any one of the procedures must end on the day of or day after the start of "First ICU."

It is important to note that because a patient can be admitted or transferred into the ICU multiple times during an encounter, we need to be able to identify the first one. So these two functions together define the "Start Date/Time" of the first ICU.

Moving on to the next exclusion, we've already reviewed intervention comfort measures in VTE-1, but the timing conditions here are using interval operator, which is looking for comfort measures to occur from the date of start of the hospitalization to the day *after* the first ICU.

Again, in the last exclusion we've already reviewed the logic in VTE-1 and noting the difference here is in the timing condition where we are looking for comfort measures to occur on the day of or the day after the procedure ends and that the procedure ends one calendar day after the start of the first ICU.

Now moving into VTE-2 numerator and it reads: "Patients who receive VTE prophylaxis either the day of or day after ICU admission or day of or day after surgery that ends day of or day after ICU admission or transfer." Another numerator condition is patients who have documentation of a reason why no VTE prophylaxis was given between arrival and ICU admission, the day of or the day after ICU admission, the day of or the day after surgery end date. And similar to VTE-1 numerator, these have broken the definitions out into five conditions for the population.

Here is a comparison for VTE-1 and VTE-2. We use the same critical concepts but have different timing conditions, where VTE-2 is about the first ICU stay. So for the remainder of the presentation, we will only focus on the timing constraints.

Now in slide 98, in the first numerator condition there are two different timing conditions that are unioned together. Either timing condition will satisfy the numerator. The first timing condition is looking for VTE prophylaxis must occur on the day of or the day after the start of first ICU. The second condition is looking for VTE prophylaxis to start during the day of or the day after the end of the procedure and that the procedure ends one calendar day after the start of the first ICU.

You'll notice that we use the day of or day after function and the calendar day of or day after function, which also has the same meaning.

Within the second numerator condition, we have three definitions. Beginning with "Medication Oral Factor Xa Inhibitor Administered on Day of or Day after First ICU stay or Procedure." In this logic, we're looking for oral Factor Xa inhibitor to be administered on the day of or day after the first ICU stay or procedure and that the procedure ends one day after the day of start of first ICU.

The second definition is "Encounter with Prior or Present Diagnosis of Atrial Fib or VTE." This is the exact same logic as VTE-1, which is looking for history or concurrent A-Fib, encounter diagnosis of A-Fib, or a history of VTE diagnosis.

In the third definition is the "Encounter with Prior or Present Procedure of Hip or Knee Replacement Surgery." This is, again, the same exact logic as VTE-1, which is looking for a hip replacement surgery or a knee replacement surgery performed on or before the end of the encounter.

Moving into the third numerator condition...again, same as VTE-1, we transition the focus though to "Patients Who Have a Reason for No VTE Prophylaxis." This condition of "Low Risk for VTE" or "Anticoagulant Administered" is unioned into two definitions using two timing conditions. So from the start of hospitalization to day after first ICU stay and the day of or day after procedure...either one of these timing conditions will satisfy the numerator.

Here in the first timing condition we use intervals to define the time period between start of hospitalization to one calendar day after first ICU start. So any of the low VTE assessments or medication administrations should occur between start of hospitalization and the day after a first ICU stay.

In the second condition, any of the low VTE assessments or medication administrations should occur on day of or day after procedures...and, again, that the procedure ends one day after day of start of first ICU.

Moving to the fourth numerator condition...we use the same concept as VTE-1, where we're looking for a medical reason for both pharmacological and mechanical VTE prophylaxis not done. So "VTE Prophylaxis Medication Not Done" and "Device Not Done" should occur any time between start of hospitalization and day after first ICU stay, or both of them should occur on the day of or day after a procedure. As you can see, we continue to repeat that same timing condition within VTE-2.

In the last numerator condition, we use the same timing conditions again; but here we're looking for a "Patient Refusal" reason for either "Medication Not Done" or "Device Not Done."

Moving into slide 107, the Denominator Exception...with the Denominator Exception, it's important to note the difference between an exclusion and an exception. Simply, it differentiates in the way it processes. The exclusion is processed before the numerator. So a "Patient is Excluded" and "Never" in the numerator.

An exception is processed after the numerator. So if a case fails the numerator but meets the denominator exception, it will be excluded from the measure. So in this instance, a patient with first ICU stay less than one day will be excluded from the measure.

That takes us to the end of our review for VTE-2. Before we move to the Q&A portion, I will do a quick review of some of the key resources:

The ECQI resource is a one-stop shop for ECQI-related information. It houses the various tools and resources...such as the measure specification, the technical release notes which describe all changes made during the annual updates, and the addendum...the measure flows, which helps to understand how the data is processed.

There are links to the QDM and CQL Standards, as well as previously-recorded webinars and slide presentations.

There is also an Event Calendar where you can find additional educational sessions.

The Value Set Authority Center is where we store all the value sets and direct reference codes used in the measures. It does require license, but it is free to the public.

Here in item No. 3, we're frequently asked about how to implement (inaudible). There is a presentation from HIINs from 2018, "Getting Started with CQL: Technical Implementation for Vendors" that provides an overview for the CQL architecture, building a CQL execution engine, and using open source execution engines. A newer version that was presented at HIINs this year will be made available, so more additional details to come in the upcoming sessions.

Item Nos. 4 and 5 are quick links to the (inaudible) sites to submit questions to specific CQL and eCQM measures.

Lastly, in item Nos. 6 and 7 are the links to the "Pioneers in Quality" portal, where you can find all previously-recorded presentations and slides and register for the upcoming educational sessions.

Thank you, everyone.

Lisa, it's all yours.

Lisa Anderson: Thank you, Mia.

We will now move on to the Q&A. To ask a question, please type your question and slide reference number in the "Questions" pane. We will answer as many questions as the remaining time permits.

[Pause for audience questions]

In the room with us is Yanyan Hu. She is the content expert for the VTE measures. I am going to go through the list of questions that we've already answered through the Web pane, and we'll continue asking questions after that.

The first question comes from Pamela Walker at University of Maryland: "Can you clarify how Intersect works in this place in the logic?"

Yanyan Hu: The Intersect, which is only looking for the common elements between the lists "A" and "B," in this logic in order to include admission without VTE or obstetrical condition, we use Intersect along with the operator "not." See the example in slide 21, or go to the CQL...the standards...for the detail.

Lisa Anderson: Thank you.

This next question comes from Faith Colon from UPMC: "Does the venous thromboembolism diagnosis make a difference for POA or not POA?" For those of you who don't know what "POA" means, that's present on admission.

Yanyan Hu: Both VTE-1 and VTE-2 measures do not look for present admission as part of diagnosis.

Lisa Anderson: Thank you.

Another question from Faith: "Does comfort measure documentation meet the requirement, or does it have to be an order from a provider for comfort measures only?"

Yanyan Hu: VTE-1 and VTE-2 measures are looking for comfort measure in the data type of "Intervention Order" or "Intervention Performed." We are looking for the comfort measure value set code in (inaudible) as mapped to its (inaudible).

Lisa Anderson: "Can you please define length of stay two days? Is Day 1 considered the day of arrival until midnight or a 24-hour period?"

Yanyan Hu: In slide 38, it states that if calendar length of stay is less than two days, the calculation is to find the difference in days between two dates. So it is calculated by day, not by hour. For example, the length of stay of February 26th and February 25th is one day.

Lisa Anderson: Thank you.

This next question comes from Rebecca Redding from Randolph Health: "What happens if a patient is placed in observation before they are changed to an inpatient status? Are they excluded in the measures, or does the hospitalization not start until the date that they change to an inpatient status?"

Yanyan Hu: Slide 30 illustrates the hospitalization time frame. The observation is not currently considered as part of the hospitalization time frame calculation.

Lisa Anderson: Susan Nelson from North Memorial Health Hospital is asking about slide 40: "Does the start of the encounter mean the arrival time to the hospital or the admission time to the unit in order to calculate the day of and day after?"

Yanyan Hu: Slide 40 is to calculate encounter if ICU location stay is one day or more. The start of encounter means inpatient admission.

Lisa Anderson: This next question comes from Faith: "Does documentation from a provider qualify for comfort measures only, or does there have to be a provider order?" I'm sorry, that might be a repeat question; but I think we have additional information in that answer.

Yanyan Hu: The eCQM requires the comfort measure code is mapped to a discreet field in the EHR, and it could be either an intervention performed or orders documented in the EHR.

Lisa Anderson: Thank you.

This next question comes from Bethany Ethridge: "Is there any more specific guidance as to what medical reasons are acceptable?"

I'll take this one, Yanyan. Thank you for your question. We reuse the medical reason value set for multiple measures, so it is fairly generic. It includes concepts such as medical contraindications, medical allergies, et cetera. We have seen this implemented using best practice alerts and order sets if that helps.

The next question comes from Melanie Hoover: "What about atrial flutter diagnosis intersection for oral Factor Xa?"

Yanyan Hu: To answer that question, the value set does include the diagnosis of atrial flutter as well as atrial fibrillation.

Lisa Anderson: The next question comes from Jennifer (inaudible) from SSM Health: "The intervention has more time now than under the prior specification. Before it was within 24 hours of administration. Day of and day after is technically longer, correct?"

Yanyan Hu: In slide 46, the term "the day of" is looking for an intervention occurs on the same day of hospital admission. It is calculated by days, not by hours.

Lisa Anderson: Thank you.

The next question comes from Heidi Clostin from [eMeds Plus Encore]: "Can a patient be on the denominator population for both VTE-1 and VTE-2 if they were admitted to Med/Surg then transferred to ICU during the encounter?"

Yanyan Hu: Yes.

Lisa Anderson: Next question comes from Katherine Brodsky from Integrated Medical Professionals...oops, I'm skipping that one. I'm sorry. That's "Where is the recording located," and hopefully you know that answer.

Let me go to some questions that we haven't gotten to yet. This question comes from Maria Ceda from HCA: "If a patient was admitted as an outpatient, contraindications ordered by the physician, and then the patient transitions to inpatient, will the contraindication stand or will the case become a negative numerator?"

Yanyan Hu: The observation so far...outpatient and observation are not considered in the hospitalization calculation, so no.

Lisa Anderson: This next question comes from Stephanie Weiss: "Based on the webinar, if a patient is in ICU less than a day and no VTE prophylaxis is documented, will it be excluded from the measure? For example, a patient is transferred to ICU and then transferred to another facility five hours later for a higher level of care. Does that exclude the requirement for VTE prophylaxis during that five hours if STVs were ordered?"

Yanyan Hu: For the VTE-1, if ICU lends – for VTE-2, yes, if length of stay is less than one day, the patient will be excluded from VTE-2.

[Pause]

Also for the VTE-1 and saying that encounter with ICU stay less than one day or more, then it will be in the VTE-1; however, the example you provided if ICU stay is less than one day, it will be excluded from VTE-1 also.

Lisa Anderson: Thank you.

We have a question from Katy Helius from MemorialCare: "Could you clarify the 'patient ambulating' as a reason for no prophylaxis?"

Yanyan Hu: Yes, we realize that some of our explanation may have cut out. So reasons for no pharmacological and no mechanical VTE prophylaxis must be explicitly documented and linked with VTE prophylaxis. For example, a statement like "No VTE prophylaxis, Patient is Ambulating" is an acceptable reason for no mechanical prophylaxis. Ambulation alone or statements like "Patient Fully Ambulatory" are *not* sufficient reasons for no mechanical prophylaxis. Linkage with VTE prophylaxis is needed.

Lisa Anderson: This next question comes from SITC: "What you refer to as 'union' is basically the exclusions or what would be excluded from the numerator, correct?"

Yanyan Hu: No....the union operator can be used in multiple areas of the measure logic; it's not limited to the numerator or the exclusions. It's basically when we want to take

a list of things and say, "It could be in this list or this list," and it's sort of like an "or" statement. If you can think about it in that context, I hope that helps.

Lisa Anderson: This next question comes from Holly Jimmy: "If a patient has devices ordered but the nurse doesn't document applications, are they non-compliant?"

[Pause]

Yanyan Hu: My understanding of the question is that a patient received the device ordered. So if the device ordered is documented, it should count.

Lisa Anderson: The next question comes from Karen from Spectrum Health: "If a VTE assessment of low risk can be done in the ED or day of or day after admission, same as refusal, as long as the ED encounter ends no more than one hour before an encounter?"

Yanyan Hu: Yes, absolutely, that's correct. So a VTE assessment of low risk is part of the reason for no VTE prophylaxis, as Mia in the slides demonstrated...so, yes, correct.

Lisa Anderson: Thank you.

Our next question comes from [Magli] from VHSF: "If they received STDs prior to the procedure and after a procedure does Day Zero and Day 1 repeat and they need another documentation to satisfy the measure?"

I'm not exactly sure what you mean by the question, Maglie. If you're still on the line, if you could add more information to that question to help us investigate that a little bit further that would be helpful.

This next question comes from Leslie Hardenburg from Texoma Medical Center: "For VTE-1, if a patient is admitted on 2/24, Day 1, and has a procedure on 2/25, Day 2, does VTE start over as the procedure date of 2/25?"

Yanyan Hu: Yes, so if the VTE prophylaxis is on the 25th, it counts. And also, for this patient to have the procedure on February 25...so if the VTE prophylaxis is administered on the 26th, it will still count because it will satisfy the condition that VTE prophylaxis was administered the day of/the day after that procedure and the day after admission...so, yeah.

Lisa Anderson: Thank you.

This next question comes from Adrianne Frankel from Cambridge Health Alliance: “How is two days calculated? Is it a 48-hour count, or is it the admission date plus two?”

Yanyan Hu: The two days for VTE measure Nos. 1 and 2...both measures are using the calculated – the unit of calculation is days. So the unit is days, not for the hours. The two days is not equal to 48 hours in terms of the calculation in VTE measures. So if the two days will be calculated, the difference between two days as I mentioned before. So it's not plus two days; it has to be the differences between two days. For example, today is February 26th. So the two days will be February 26th minus February 24th equals two days, so....

Lisa Anderson: Calendar days.

Yanyan Hu: Calendar days, right.

Lisa Anderson: This next question comes from Melanie Hoover from Magruder Hospital: "For patients that are an inpatient direct admit and do not have an ED encounter, they would still be in the VTE population...correct?"

Yanyan Hu: Yes, correct.

Lisa Anderson: Thank you.

Our next question comes from Faith Cohen: "Does aspirin fulfill the measure?"

Yanyan Hu: No...so far, as far as I remember, aspirin is not the VTE prophylaxis – the medication. But we can clarify and confirm afterwards.

Lisa Anderson: Yep, and just to remind folks that the way that you find out what medications are in the value set is to go to the Value Set Authority Center, which we have a link to in our resources, and look up the OID or the object identifier for the value set to see what medications are included in that.

Our next question comes from Stephanie West: "Does a patient refusal of either mechanical or pharmacological count as a refusal for both?"

Yanyan Hu: Yes.

Lisa Anderson: Thank you.

We're winding down on time, so we will take one more question. This next question comes from Susan Spencer – I'm sorry. Sorry, we still have seven minutes; I'm trying to jump off early: "Where does the data logic look for documentation of low-risk, no VTE, no preference, prophylaxis needed?"

Yanyan Hu: There's a field called the "Medical Reason.: Like Lisa mentioned, those are the medical reason value sets contain a generic reason for no VTE prophylaxis.

Lisa Anderson: Thank you.

The next question comes from Samir Babar from Texas Health Resources: "You mentioned observation time does not get included for VTE, but does the same apply for the ED measures?"

Thank you for that question. I know we presented the ED measures previously with our peers from Lantana Consulting Group. We would have to research that answer and get back to you because I'm not exactly sure if their measure includes observation patients or not.

The next question comes from Susan Spencer from Barton Memorial Hospital: "Where does the logic look in the EMR for documentation of 'Low Risk, No Prophylaxis Needed'?"

That's a good question. When you're doing your mapping, the information could be captured in a few various places in your EMR, such as a response to a best practice alert... It could be in an order set of why you're saying why you didn't

document your VTE prophylaxis. So it really depends on how you have your EHR is set up and how you have it configured and maps for the QR day reporting, which is what's required for the eCQM.

Our next question comes from Camra Azar: "Given that many EHRs still have not put the new eCQM and PI objectives in place in their production system, do you see the reporting time frame changing...perhaps the attestations time frame?

We currently do not have any inkling that there will be changes in the reporting period. I can tell you that the proposed rule will be coming out in the future through the HIQR rule. If you're interested in that policy part of it, I highly recommend reading it and providing public comments to that from your organization...if that helps.

I see some questions about the ED measures. I am going to skip those for those who entered those questions, but we will get those answered in our Q&A for our final response.

This next question comes from Christie Martel from Memorial Hospital of Jacksonville: "For the contraindication of no VTE, does it have to be documented in a certain spot or in the MD Notes is that okay?"

Yanyan Hu: Yeah, so this is the same question; the answer will be the same. The medical reason has to be documented in a discreet field and have the codes map to this field.

[Pause]

Lisa Anderson: This next question is from Janet Wagner from RWAC: "If the encounter admit order is during the ED visit prior to the ED depart, is the ED information intervention included for the encounter/VTE measure?"

Yanyan Hu: Yes, any interventions that are tied to that hospitalization function will count if they were done in the ED. You just need to look at the logic and see which criteria matched that because it's mostly in the denominator exclusions that we use that function.

Lisa Anderson: I'm going to go to our last question from Beth Salmon from the VHA: "Is there a standardized risk assessment required in order to use the low-risk exclusion?"

Karen, I'm going to turn that over for you. Is there a standardized risk assessment tool that folks should be using for a VTE assessment?

Karen Holbusz: We do not use a standardized risk assessment tool for VTE-1 or VTE-2. There are multiple tools; sometimes their called risk assessment models as well. Some of the popular ones are the Caprini or the [Cadua]...also Improve. Those can be found in the literature, but we do not require the use of one specific tool for VTE-1 or VTE-2.

Lisa Anderson: Great, and I'll let Yanyan explain how we identify that patients are low-risk in the eCQM.

Yanyan Hu: In the eCQM, we are looking for the – as long as the result assessment performed. If the result is low-risk, this patient will satisfy the numerator.

Lisa Anderson: Great, thank you.

With that, we are going to wrap up. Let me get to my next slide. A few closing remarks before we end the session...as a reminder, the slides are available for download now.

Please visit the Expert to Expert series Landing Page, which includes the registration links for future sessions, presentation replays, slide decks, and Q&As.

Our next session addresses CAC 3, which is the Children's Asthma measure, and ND1A, which is the Newborn Hearing. Please register and join us on March 5th.

I'm now going to hand it over to Susan Funk to give you some more information.

Susan Funk: We just wanted to do a plug for the eCQM Improvement Practices collection. Yesterday, we released the 2019 eCQM Proven Practices Submission tool. It can be accessed at www.JointCommission.org/Pioneers_in_Quality_Proven_Practices_Collection. You can also find more information on this at the Expert to Expert Landing Page and the Pioneers in Quality landing page. We have links to those located in other locations in the slide deck.

Lisa Anderson: Great, thanks, Susan.

Last year, we had 25 submissions for our Proven Practices; and this year we would love to double that. So we'd love to hear from you and give us some of those.

Sharon Sprenger: This is Sharon. Let me just to yesterday's part of our communication plan. To all of those organizations that The Joint Commission knows we'll be submitting on 2018 eCQMs, we sent the communication to the CEO. Who we've got in our database is our ORYX contact, the Primary Accreditation Contact, and the Chief Quality Officers. I mention that so that you could reach out to one of them also to see the communication that was sent.

One other group that it was sent to is all of you as registrants from the Pioneers in Quality webinars that we've had. So check your mailbox; you should see the e-mail about the mentioned tools.

Lisa Anderson: Great, thank you.

If you qualify for CE credits, please complete the survey you can access via the link in an automated e-mail you will receive tomorrow. The evaluation closes two weeks from today. Once the survey closes, all of those that complete the survey and are eligible for CEs will receive an e-mail with a PDF certificate.

Thank you to everyone who took the time to present at today's webinar and thanks to all of you who listened in. Have a great day!