Etiometry Enhances Clinical Decision Support Platform

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CEOCFO: *Mr. Cooke, it has been about a year since we have spoken about Etiometry. How has the company changed over the last year?*
Mr. Cooke: The market and the company have changed substantially in 2020. The pandemic has impacted us all and has certainly had a major impact on the healthcare community. Even with all the changes that have taken place in the market, we have made great progress this year as a company by enhancing our platform, generating clinical evidence, and growing our footprint. I am proud of the Etiometry team for what we have been able to accomplish, and most importantly for the hospitals and the patients that we have been able to help during this time.

CEOCFO: *According to your website, Etiometry is transforming critical care data into clinical insights. How are you doing so?*
Mr. Cooke: Our end-to-end clinical decision support platform provides a comprehensive view of a patient, including proprietary risk algorithms we have developed to bring more attention to patients that need it most. We start by aggregating data from multiple sources within the critical care environment, such as the ICU, operating room, or emergency department. Our platform receives data from the patient monitoring gateway, the laboratory systems, the electronic medical records, as well as from peripheral devices, such as ventilators which has certainly been an important element this year with COVID-19. We harness this data into one platform and into one visualization so that clinicians can truly get the full context of their patient, such as the longitudinal trend of key vital signs, parameters and lab results which can help guide their clinical decisions.

We are a web-based solution and while our visualization is usually right by the patient's bedside, our platform is also visualized remotely in command centers, nursing stations, at a clinician's desk in the hospital, or even from home. I have seen some clinicians carry a tablet, and they pull up the patient data as they are walking into a patient's room. Our platform is easy to use, with an intuitive visualization which can help to drive efficiencies in care and improve care team communication as everyone is looking at the same information.

Our core focus as a company is developing patient risk algorithms driven by our unique model-based approach to analytics. The comprehensive model of physiology that we have built has led to two FDA-cleared algorithms, IDO2 and IVCO2, which continuously track key patient risks of underlying adverse physiological conditions to help clinicians better assess the patient and determine next steps for treatment. For instance, our inadequate delivery of oxygen index pulls

from all the data and parameters that are coming into our platform and continuously tracks the risk that a patient is experiencing hypoxia.

Our platform also includes a clinical database that enables researchers and quality improvement professionals to easily access high-fidelity patient data files for clinical research and care improvement projects.

CEOCFO: *What does the FDA look at to give you the stamp of approval for this type of solution?*

Mr. Cooke: We submit a tremendous amount of data to the FDA with all our submissions which show correlations between our algorithms and invasive monitoring parameters and laboratory results, as well as performance data for our algorithm.

For instance, our inadequate delivery of oxygen index (IDO2) continuously assesses the likelihood that if a clinician were to draw a mixed venous oxygenation, or SvO2, it would be below 40%. The correlation and statistical data we submit to the FDA shows our ability to assess this likelihood consistently and accurately.

CEOCFO: *How are you able to gain attention from hospitals that are scrambling around just to exist day-to-day?*

Mr. Cooke: It has certainly been a challenging year for hospitals, and especially ICUs, with the increased patient load. Our goal is to help them as much as we can, and our remote monitoring capabilities were highly sought throughout this year. We have expanded our bed coverage at most of our partner hospitals this year, mostly for free, to ensure they had advanced monitoring coverage throughout their critical care units. Expansions into pediatric ICUs, neonatal ICU and adult ICUs was a major focus for our company this year, and we have also signed several new customers who see the benefit of remote monitoring, and the clinical insights we provide with our risk algorithms.

> **"Our model-based approach to analytics removes the "black box," providing further insight into the causes or etiologies of a patient condition, which can help inform the treatment plan." Shane Cooke**

COVID-19 has highlighted the importance of efficient care in the ICU, which is our company's focus. We drive efficiency by streamlining care team communication, being deeply ingrained in clinical workflows, aggregating several data streams into one visualization, and with the ability to do all this remotely with our web-based visualization.

CEOCFO: *Are you continually adding to what information you can incorporate or are there only so many things that can be measured?*

Mr. Cooke: We are continually adding more information into our platform and algorithms, and this comes from partnering with our customers and key clinicians. In late November, we received our sixth FDA clearance for the platform, which shows our ability to rapidly iterate to meet customer needs. This latest FDA clearance includes new features which enhance the use of our risk algorithms, helping to answer why an algorithm may be elevated. This clearance also enhances the access & visualization of our platform with our Surveillance View, which shows key parameters and trends for all patients within a unit.

Some of the other enhancements that we have added this year include incorporating new data elements into our algorithms as well as getting more access to information from the electronic medical records such as vasoactive medications that can be viewed in our platform. We are focused on adding as much information as possible, to help clinicians make more informed decisions for their patients.

CEOCFO: *Do you find most clinicians know what they should be reviewing?*

Mr. Cooke: The doctors, nurses, and respiratory therapists we regularly interact with are fantastic and they know what they are looking at and looking for. One of the key challenges, especially in the critical care environment, is that there is so much data to process, from several different sources, and quick decisions need to be made for the challenging patient conditions that are a mainstay in the ICU, ED and OR. The pandemic has added more complexity to the situation, with the influx of patients, and the need for PPE and sanitizing which is a further draw on clinicians' time. Harnessing information into one platform and providing additional clinical insights with our algorithms is helpful to cut down on the data overload which is often present.

I have read some stories this year about the level of burnout for clinicians during this pandemic. Burnout in the ICU has always been an issue and it has been exacerbated by the pandemic, and while they already know what they are looking for, being able to provide an efficient way to get that information is always helpful.

CEOCFO: *As medical research changes, how does that information get incorporated in your software solutions? How do you keep up with what might make a difference?*
Mr. Cooke: Our approach to analytics separates us from any other data and analytics company in the market. We have a physiology model-based approach to analytics which is different from machine learning where you are analyzing massive amounts of data and trying to predict an outcome. We are, of course, also focused on the outcome, but we are more focused on *why* a patient is trending in a particular direction, since this can better inform the direction or intervention a clinician takes to help the patient.

Our model is based on the core fundamentals of physiology and looking at the primary physiological risks within a patient. That does not change over time but what does change is the new information we can incorporate to further enhance our ability to assess the risk of the patients and their risk of being in an adverse physiological state. As far as research goes, our product is very helpful with clinical research because we automatically collect and store patient data and the hospital can use the data to drive their own research and quality initiatives. We have had several abstracts from clinical studies accepted for presentation this year which used our software to collect the data.

CEOCFO: *How did you decide this model is the way to go? Why have other solutions not relied on the power of physiology?*
Mr. Cooke: I think others recognize the power of physiology, however one thing that makes us different is where the company started. The company co-founders are aerospace engineers, a field that uses risk estimation technologies and statistical methods in a very dynamic environment. It is an ideal solution to therefore take a model-based approach like they do in aviation or aerospace engineering and apply it to one of the most complex medical environments in critical care, where you have millions of data points streaming for every patient. Being able to harness the data and help a clinician find the best treatment path for a patient is our goal, and our model-based approach enables this.

In short, our model-based approach to analytics removes the "black box," providing further insight into the causes or etiologies of a patient condition, which can help inform the treatment plan.

CEOCFO: *Might this be useful eventually for most patients or all patients?*
Mr. Cooke: Our vision is to be the global leader in clinical decision support, throughout the continuum of care. While we have primarily focused our efforts on the ICU, and early on in cardiac ICUs, this year we have expanded into new markets, such as pediatric ICUs, neonatal ICUs, and adult ICUs.

We have also expanded into other new departments such as the operating room, post-anesthesia care unit, and the emergency department. These expansions get us one step closer to realizing our vision of impacting clinical decisions across the hospital, providing remote monitoring and advanced clinical insights wherever they are needed.

CEOCFO: *If you start with a new hospital today, might they look to use the Etiometry platform in several different areas or is it typically starting in one and then adding on over time?*
Mr. Cooke: If you went back one or two years, we would most likely be starting in one unit, and over time, may move to other units as well. However, right now hospitals are typically starting with a couple units and we expect them to increase beyond that over time. This is a function of the markets we have recently entered, the clinical workflows we are supporting in these new units, and the clinical evidence we are driving. As we progress over the next twelve to eighteen months you will start to see that a new hospital that comes onboard is starting in three or four or more units, especially as they see the benefit of visualizing longitudinal data as patients may move from the emergency department to the OR to the ICU.

CEOCFO: *How are you reaching out to new customers?*
Mr. Cooke: The awareness of our platform is growing and the ICUs we focus on have very tight-knit clinician relationships that extend across the country and throughout the world, which has helped us with new hospital introductions.

Being in a remote commercial mode throughout most of this year was challenging, however, we leverage our key contacts at hospitals to get introduced to other ICUs and departments, and this has been a major driver of our expansion in 2020.

I am hopeful that with the vaccine and continued focus on distancing and other safety measures, we can all return to some sense of normalcy next year. I miss being in the ICUs and having face-to-face discussions with clinicians to hear how our technology is impacting patient care. In the meantime, we will continue to try to help as many hospitals, clinicians and patients that we can with our platform.

CEOCFO: *What is ahead for Etiometry for 2021?*
Mr. Cooke: We are very excited about the key objectives we are driving towards in 2021. We are focused on continuing to grow our customer base; we doubled our customer base this year and we are looking to do that again in 2021, continuing to expand into new markets with larger patient populations.

We have several ongoing clinical studies that will hopefully be in publication next year, and we will continue to advance the technology platform, with new features and new risk algorithms. We are the only company with two FDA-cleared risk indices for critical care, and we are striving to have two more next year. One major focus area for 2021 is to continue our growth in adult ICUs, driving clinical evidence of our platform and algorithms.

CEOCFO: *Final thoughts?*
Mr. Cooke: I am very proud of the Etiometry team for all the progress we have made, especially considering what is going on in the market. Stay safe and healthy!