



# CytoSorbents™

Working to Save Lives Through Blood Purification

**CytoSorbents Corporation (NASDAQ:CTSO)**  
**Q3 2016 Earnings and Operating Results Conference Call**  
**November 7, 2016 @ 4:45 PM Eastern**

*This official company transcript has been edited for clarity and does not differ materially in content from the actual conference call except where noted. Slide numbers have been inserted to allow readers to follow along with the associated presentation*

**Operator**

Good day ladies and gentlemen, and welcome to the CytoSorbents Third Quarter 2016 Operating and Financial Results Conference Call. Joining me for today's call from the Company are:

- Dr. Phillip Chan, Chief Executive Officer and President
- Vincent Capponi, Chief Operating Officer
- Kathleen Bloch, Chief Financial Officer
- Dr. Christian Steiner, VP of Sales and Marketing from Germany
- Chris Cramer, VP of Business Development

Before I turn the call over, I'd like to remind listeners that during the call, management's prepared remarks may contain forward-looking statements, which are subject to risks and uncertainties. Management may make additional forward-looking statements in response to your questions today.

Therefore, the Company claims protection under the Safe Harbor for Forward-looking Statements contained in the Private Securities Litigation Reform Act of 1995. Actual results may differ from results discussed today. And therefore, we refer you to a more detailed discussion of these risks and uncertainties in the company's filings with the SEC.

Any projections as to the Company's future performance represented by management include estimates today as of November 7, 2016, and we assume no obligation to update these projections in the future as market conditions change. During today's call, we will have an overview presentation covering the financial and operating highlights for the third quarter by Dr.

Chan and Ms. Bloch. Following that presentation, we will open the line for your questions during the live Q&A session with the rest of the management.

It is now my pleasure to turn the call over to Dr. Phillip Chan. Please go ahead.

**Dr. Phillip Chan**

**Slides 3-5:**

Thank you very much and welcome everyone to the call. For those new to the story, I'd first like to give a quick overview on what we do followed then by our quarterly financial and operating progress. CytoSorbents is a leader in critical care immunotherapy. We are leading the prevention or treatment of life-threatening inflammation in the ICU as well as cardiac surgery using CytoSorb® blood purification.

CytoSorb is designed to remove the fuel to the fire of inflammation, targeting a \$20 billion opportunity in critical care medicine and also in cardiac surgery. CytoSorb is approved in the European Union as the only specifically approved extracorporeal cytokine adsorber, broadly indicated for use in any situation where cytokines are elevated. CytoSorb removes cytokines as well as many other inflammatory mediators such as free hemoglobin, bacterial toxins, myoglobin, and activated complement, and is plug-and-play compatible with standard dialysis and heart lung machines found in hospitals today.

We are pleased to state that CytoSorb now has been used safely and has been well-tolerated in approximately 17,000 human treatments, which is up from 14,000 treatments last quarter. The goal of CytoSorb is to try to control this deadly inflammation as the means to prevent or treat organ failure which is the leading cause of death in the intensive care unit today.

Our strategy with CytoSorb is to treat patients early and aggressively, thereby working to try to improve patient outcomes and survival while decreasing the massive cost of ICU and patient care. Given the many, many different illnesses and conditions where CytoSorb has been used successfully to-date, we truly believe that CytoSorb has the potential to revolutionize critical care medicine.

**Slide 6:**

We believe that CytoSorb is uniquely positioned to lead this revolution in critical care medicine because frankly the world needs a product like CytoSorb. As we know on left hand side, there have been many, many different types of viral outbreaks such as H1N1 swine influenza, Ebola, MERS, SARS and many other diseases, where inflammation has played a very dangerous role in the development of organ failure and death and these patients, and that is exactly what CytoSorb is designed to control.

On the right hand side, there are 30 million people who are afflicted with severe sepsis or septic shock every single year around the world, where approximately 10 million people die. And as I have mentioned in a recent interview on Sirius XM Doctor Radio, sepsis is an equal opportunity killer. It doesn't matter if you are old or young, rich or poor, black or white, Republican or Democrat. Sepsis does not discriminate, killing one person every three to four seconds around the world.

CytoSorb is also playing a role in helping patients survive from severe injuries sustained from natural disasters like hurricanes, earthquakes, mudslides, and tornados, as well as commonplace tragedies that happen every day including motor vehicle accidents, fires, and other types of complicated conditions and illnesses. Ahead of Veteran's Day this Friday, CytoSorb also helps to control the deadly inflammation in conditions that our soldiers die of, such as penetrating wound infections, polytrauma and burn injury. It can also be used to help treat traumatic injuries from the many thousands of people who are injured or killed from terrorist activities and war.

As you can see, CytoSorb is strategically positioned to address these major unmet medical needs which are expected to drive greater usage of CytoSorb in the future.

With that, let me turn it over to Kathy to talk about how CytoSorb is being received by the market today. Kathy?

**Kathleen Bloch**

Thank you, Phil and good afternoon everyone. For today's call, I will be provide an update regarding CytoSorbents' third quarter 2016 financial results including our product sales progress, an update around our working capital and cash run rate, and some trends regarding our operating progress towards breakeven.

**Slide 8:**

CytoSorb product sales for the Q3 2016 doubled to \$2.14 million as compared to product sales of approximately \$1.07 million for Q3 2015. Our Q3 2016 annualized product sales run rate rose to \$8.6 million as compared to an annualized run rate of approximately \$4.3 million one year ago.

Total revenues, which includes product sales and grant revenues were approximately \$2.4 million for Q3 2016, as compared to approximately \$1.3 million for Q3 2015, which is an increase of approximately 79%.

In Q3 2016, our gross profit of \$1.4 million more than doubled as compared to gross profits of approximately \$705,000 for the Q3 of 2015. And we continue to experience strong gross profit margins on product sales.

For Q3 2016 gross profit margins were approximately 68%, largely as a result of the sales mix, as compared to gross profit margins of approximately 63% for Q3 2015.

**Slide 9:**

And now let's take a look at our quarter-over-quarter product sales. Our third quarter 2016 product sales of approximately \$2.14 million represented our best quarterly product sales ever and was our first quarter of more than \$2 million in CytoSorb product sales.

In addition, Q3 2016 product sales were approximately \$290,000 or 16% higher than the previous quarter of Q2 2016.

Q3 2016 represents our sixth consecutive period of quarter-over-quarter product growth and our fifth consecutive quarter of record sales. We also note that the change in the Euro relative to the dollar did not have a material impact on our sales when comparing 2016 to 2015.

**Slide 10:**

Now turning to our nine month financial results, CytoSorb product sales for the first nine months of 2016 were approximately \$5.6 million, a 119% increase over product sales of \$2.5 million for the first nine months of 2015.

Grants and other income grew 76% from \$482,000 for the first nine months of 2015, to \$850,000 for the first nine months of 2016.

Total revenue which includes product sales and grant and other income was approximately \$6.4 million for the nine months ended September 30, 2016 as compared to \$3 million for the same period in 2015; an increase of approximately 113%.

**Slide 11:**

Next, we'll take a look at our trailing 12-month product sales chart. This chart highlights the trailing 12-month product sales from the last four years, and it clearly illustrates the increasing trajectory we are experiencing in our products sales. Sales for the 12 months ended September 30, 2016 of approximately \$7.1 million, an increase of 107% over the one year ago period. In fact, our three year compound annual growth rate or CAGR was 128%. We expect this very positive trajectory in product sales to continue into the coming years for a number of reasons.

- First, reorders from direct sales continued to strengthen particularly as CytoSorb is being used as a *de facto* standard of care for certain conditions at a number of major hospitals. We see a tremendous growth opportunity in our direct sales territories as we approach a critical mass of awareness and positive usage.
- International sales are expected to grow more rapidly with 32 countries of the 42 countries where we are distributed now contributing to revenue. We have invested a significant amount of resources to make sure that we have staffed this part of our business appropriately and to provide the attention to detail that it needs and deserves.

- In addition, we know that in 2017, all three of our major strategic partners, Fresenius, Terumo, and Biocon, will be selling CytoSorb actively in their territories in critical care and cardiac surgery, acting as a further driver of growth.
- And finally, as Phil will describe in a few moments, there is more and more data being generated which we believe will lead to momentum in clinical usage, reimbursement, and transition of the therapy to standard of care.

**Slide 12:**

Let's now look at the world map. With regard to distributors in September 2016, we entered into a multi-country strategic partnership with Terumo Cardiovascular Group. Phil will provide more information about this exciting new partnership later in the call.

In September and October, we announced exclusive agreements with Arsak and Foxx Medical Chile to distribute CytoSorb in Iran and Chile, respectively, of which the latter represents our entrance into the Americas for the first time. In addition, we have expanded our direct sales team into Belgium and Luxembourg. These are markets located directly adjacent to Germany and they provide a unique opportunity for additional high margin direct sales.

**Slide 13:**

Looking at our working capital position, as of September 30, 2016, we had approximately \$6.4 million in cash which is expected to provide funding for our operations through the second half of 2017. In addition to increased gross margins from higher expected product sales and the additional \$5 million in debt which we may draw down from our credit facility with Bridge Bank, we are looking at a number of different strategies to obtain the funding for our operations and clinical studies including leveraging the balance sheets of current and potential strategic partners, additional research and development grants and contracts, non-dilutive sources of capital, traditional equity financing, among other mechanisms.

As of September 30, 2016, we have approximately 29.5 million common shares on a fully diluted basis. Looking to the future, as our sales continue to grow, we are rapidly moving towards cash flow breakeven which we expect we can achieve within two years at approximately \$20 million in annual revenues.

**Slide 14:**

This next chart shows a very important relationship between products sales, the blue line on the bottom and operating expenses, the red line on the top. The bottom line shows the rapid increase in CytoSorb sales which we have just talked about. The top line depicts fixed operating costs. To be perfectly clear, fixed operating costs by its definition exclude variable costs, clinical trial costs, and non-cash stock option expenses. You can see that fixed operating costs increased rapidly in 2014 and 2015 as we invested the resources needed to expand commercialization of CytoSorb

throughout the world, including increases in our direct and international sales teams, as well as further additions to manufacturing, marketing and support staff.

In 2016, however, increases to fixed operating costs declined because we had for the most part built the infrastructure needed for commercialization of CytoSorb. While we still expect to add certain fixed operating costs in future, we believe those additions will be relatively small when compared to expected revenue growth.

Meanwhile, we expect CytoSorb sales and gross profit margins will continue to climb, driving us to operating cash flow breakeven and profitability. This is why we are so confident about achieving operational cash flow breakeven in the near-term, probably within two years if not sooner. Once breakeven is reached, every incremental revenue dollar is expected to produce approximately \$0.50 in operating income, driving exceptional profitability.

And with that, I'd like to turn the call back to Phil.

**Phillip Chan**

Thank you very much, Kathy.

**Slides 16-17:**

Focusing on some operating highlights for the past quarter, one of our major accomplishments was the completion of our U.S. REFRESH 1 trial where we confirmed safety of CytoSorb therapy in this application. REFRESH stands for the “REduction in FREe Hemoglobin” trial, a 40-patient 8-center randomized, controlled study, evaluating the safety and efficacy of intra-operative CytoSorb usage in a heart lung machine during elective, non-emergent complex cardiac surgery that was expected to last longer than three hours. This includes very complex procedures such as aortic reconstruction, multiple valve replacements, CABG (coronary artery bypass graft) redo operations, and other types of procedures.

Our primary endpoint for the study was primarily safety, and the reduction in plasma free hemoglobin that can cause post-operative complications. We ran the study in nine major U.S. cardiac surgery centers such as Texas Heart Institute, Columbia University, University of Pennsylvania, and the University of Pittsburgh Medical Center.

A total of 46 patients were enrolled with approximately 40 patients with evaluable biomarker data. We are pleased to say that the Data Safety Monitoring Board (DSMB) evaluated all adverse and serious adverse events in the control and treatment arms and concluded that there was no safety issue with CytoSorb therapy – achieving the primary safety endpoint of the trial. This was the first randomized controlled trial using CytoSorb in high risk cardiac surgery, demonstrating safety.

The second primary endpoint of the study was a reduction in plasma free hemoglobin. Free hemoglobin is a known toxin that is generated during open heart surgery caused by hemolysis of red blood cells. Free hemoglobin not only causes the formation of oxygen radicals that can damage blood vessels and vital organs, but it is also a very potent scavenger of nitric oxide which is a major vasodilator in the blood stream. In patients who have high levels of free hemoglobin, the resulting very low levels of circulating nitric oxide might lead to high resistance of blood flow, leading to increased stress on the heart following open heart surgery, and can result in decreased blood flow to vital organs, potentially leading to organ injury or organ failure.

The REFRESH I trial was the first trial intended to demonstrate the real-time, physical removal of free hemoglobin that no one had been able to demonstrate before. Because of this, the Company's cardiac surgery advisors and investigators strongly recommended meeting with the FDA first and then presenting these promising data at a U.S. based cardiothoracic surgery meeting such as the Society of Thoracic Surgery (STS) conference at the end of January or the American Association of Thoracic Surgery (AATS) conference at the end of April. They felt that this was a U.S. study, amongst U.S. trial sites, with U.S. investigators, and felt strongly that the data should be presented at a U.S. conference. Given the importance of our advisors and trial sites, we have deferred to them, and have not presented these data yet.

In terms of the relative importance of the safety and free hemoglobin endpoints, we believe the FDA was primarily interested in establishing safety in this study because this was the first time that CytoSorb had ever been used in high risk cardiac surgery patients in a randomized controlled trial. They wanted to make sure that there no untoward adverse events from the use of CytoSorb in this application. Our safety profile demonstrates that that was not the case.

In terms of the free hemoglobin endpoint, in our discussions with the FDA, we believe the primary goal was to confirm that we had selected the right inclusion and exclusion criteria that would enable us to select patients with high levels of free hemoglobin, and therefore at greatest risk of organ injury, for REFRESH 2, and that we could do something about these high levels of free hemoglobin with our CytoSorb therapy.

Given what we know, we feel very confident that we have the appropriate data to begin a REFRESH II study next year. Of course, this is contingent upon a meeting with the FDA to discuss these data and the clinical path forward, but we are planning this to happen within the next several months. In these discussions, our goal will be to define with the agency, the clinical path for potential approval of CytoSorb in the United States in the area of cardiac surgery through either a *de novo* 510(k) path or a PMA path.

**Slide 18:**

There are many more studies underway as well. We have a broad clinical program in Europe with 58 investigator-initiated studies in various stages including several that have completed, with

nearly half that have started or are currently enrolling. These studies run the gamut from use in sepsis, cardiac surgery, post-operative inflammation, liver failure, trauma, and many other applications. In addition, we have a number of Company-sponsored trials in cardiac surgery and sepsis that will start next year in both Europe as well as in the United States.

There are more than two dozen publications ranging from case reports, case series, and small randomized controlled studies that have been submitted or being prepared for submission including the University of Greifswald refractory shock trial that we talked about last time, a second analysis of the International CytoSorb Registry by the University of Jena that should hopefully be published before the end of this year, and the first known successfully treated case of malaria using CytoSorb. As you may know, malaria is one of the biggest public health threats around the world today. Overall, we believe these publications will be extremely helpful in driving continued usage and adoption of CytoSorb, as well as reimbursement of CytoSorb in many different markets.

**Slide 19:**

Another major accomplishment for the Company was the expansion of our strategic partnerships to now include three major partners in the areas of cardiac surgery, renal dialysis and critical care, and immunotherapy. And although we won't discuss Fresenius and Biocon in great detail today, I would just like to say that those relationships are going along very well.

**Slide 20:**

The partnership that I would like to focus on today is our collaboration with Terumo Cardiovascular that we announced a couple months ago. We entered into a multi-year partnership with Terumo Cardiovascular, a global leader in medical devices for cardiac and vascular surgery applications. This included the initial exclusive distribution of CytoSorb in France, Denmark, Norway, Sweden, Finland, as well as Iceland, where Terumo has committed to annual minimum purchases to maintain exclusivity.

We believe this partnership represents strong validation of our technology and opens the door to potential expansion to other markets such as Japan, which is the second largest medical device market in the world. At the European Association of Cardio-Thoracic Surgery (EACTS) conference in Barcelona, Spain, and at a subsequent Terumo-sponsored cardiac perfusionist meeting in Nice, France that attracted approximately 40 to 45 perfusionists from around France, we worked closely with them in their marketing launch, ahead of their formal sales launch and expected initial orders to us in the very near future.

On the right-hand side of this slide, you can see some pictures from those events. In the top two pictures, there are many representatives from Terumo, as well as from our Company at both of our booths. The lower panel is a picture of one of the educational sessions at Terumo's training village that we gave, and on the left side of that picture, you can see the CytoSorb

cardiopulmonary bypass treatment pack as well as our device installed onto the Terumo heart lung machine.

**Slide 21:**

We believe that this again represents strong technology validation of CytoSorb. What you've seen already is now \$18 million in grant and contract funding from the U.S. government from agencies like DARPA, the U.S. Army, NIH, HHS and others. We also have significant validation from physicians, with approximately 17,000 human treatments and growing. And now we have validation from three of the major players in the world including Fresenius, Terumo, and Biocon in the areas of cardiac surgery as well as critical care.

**Slide 22:**

Switching gears for a minute, I'd like to also talk about our new product that is in advanced development called CytoSorb-XL that we announced a couple months ago. CytoSorb-XL is a next generation porous polymer bead technology that combines the ability to remove lipopolysaccharide endotoxin, which is a major toxin associated with gram negative bacteria like E. coli, and combines it with the robust cytokine, toxin, and inflammatory mediator reduction achieved by CytoSorb.

Endotoxin is a very potent stimulator of cytokine storm that often results in septic shock in serious gram negative bacterial infections, such as a burst appendix, severe urinary tract infections, and certain hospital acquired infections. In a head-to-head comparison, CytoSorb-XL matched the level of endotoxin reduction of the leading endotoxin adsorber, Toraymyxin™ in an *in vitro* plasma recirculation system.

CytoSorb-XL is expected to offer superior performance to standalone endotoxin filters through the removal of not only endotoxin but also a broad range of inflammatory mediators that drive uncontrolled deadly inflammation where we believe one plus one equals three.

Importantly, CytoSorb-XL and its novel endotoxin binding chemistry are the subject of a broad composition of matter patent application, intended to protect the technology worldwide for the next two decades. We believe that CytoSorb-XL will succeed CytoSorb within the next five years.

**Slide 23:**

Last but not least, we have also done a lot to increase the media coverage and awareness of CytoSorbents and CytoSorb in the marketplace. We recently launched our new corporate website at [www.cytosorbents.com](http://www.cytosorbents.com). If you haven't visited the site recently, I encourage you to do so - there is a tremendous amount of new information on our technology and on our Company. In addition, we also have the [www.cytosorb.com](http://www.cytosorb.com) website that covers a lot of the clinical data related to our therapy that is growing in the European Union and abroad.

**Slides 24:**

Next, we also have been fortunate to have had increasing media coverage as well, with recent feature articles in Forbes, Benzinga, and others. We were on the Street.com and just completed an interview on SiriusXM Satellite Doctor Radio, and we believe that there are more to come.

**Slide 25:**

Last but not least, our analyst coverage has shifted as people have moved from firm to firm but we are now covered by Aegis Capital, H.C. Wainwright, B. Riley, Maxim, WBB Securities, and Zacks Research.

**Slide 26:**

Finally, in terms of the second half of 2016, we have not historically given financial guidance on quarterly results until the quarter has been completed. In fact, the chart that Kathy went over talking about cash flow breakeven just basically puts in the current revenue from the third quarter as the estimated revenue for the fourth quarter. So please do not read too much into the chart. That said, we are currently expecting a very strong Q4 with the achievement of numerous operating milestones. In addition, we reiterate our guidance that we expect the second half of 2016 CytoSorb sales, as well as total revenue, to exceed those in the first half of 2016.

With that I would like to open it for questions and answers. Moderator, please continue.

**Question-and-Answer Session**

**Moderator** (Amy Phillips)

We'll go to our first caller, Jason Wittes with Aegis Capital. Please go ahead.

**Jason Wittes**

Okay. Hi and thank you for taking the question. You mentioned the partnerships that you have. For Fresenius, in particular, can you describe where they are in training and what your expectations are this year, and maybe a little bit into next year in terms of rollout?

**Phillip Chan**

Yes, before I turn it over to Chris for some colored commentary, Fresenius just launched in May 2016. So less than six months ago, they began marketing and selling CytoSorb into their six exclusive countries of France, Denmark, Norway, Sweden, Finland and Poland. So far, they have been doing a very nice job, particularly with the marketing of CytoSorb and they have already been selling the product now in their key accounts for five or so months. Chris, would you like to give a little bit more color on that?

**Chris Cramer**

Sure, thanks Phil. For Fresenius, I would say things are going very well, as Phil had mentioned. After they initiated commercial efforts earlier this year, they have done a nice job in getting CytoSorb out to their customers. They have created a full set of marketing materials and are doing a very nice job of articulating the benefits of CytoSorb. In addition, from what we've seen, their sales force has a strong network. They have been trained and are active in the market, and on top of that, they are out in front of customers on a regular basis. They are talking about CytoSorb. They are actively competing to win business in all six countries, and in some cases, even through tenders. I would say, at this point, this is all a result of getting customers to use the product, who have witnessed first-hand multiple success stories. We are currently working with them and their customers to have their cases published wherever possible. So overall, I believe things are headed in the right direction. Looking forward, we'll be sitting down with them to review progress and to develop a game plan for next year. With everyone focused on driving sales, I am looking forward to 2017 and we expect it to be a positive year for everyone.

**Jason Wittes**

Okay, I will limit it to just one follow-up to that answer and then maybe if you could just touch on Terumo and whether REFRESH I may have some influence on their marketing efforts.

**Chris Cramer**

Phil, do you want me to take or do you want to answer it?

**Phillip Chan**

Sure, go ahead Chris.

**Chris Cramer**

Yes, first of all, I just want to say that we are very excited to welcome Terumo as our newest partner. As Phil mentioned, we signed that agreement in September and I think as everyone has seen, we've been working very closely to get them prepared for the sales launch. So far they have gotten the word out to a lot of potential customers at EACTS as well as the follow-up perfusionist meeting in Nice, France. We are in the final stage of what I call the setup phase and are very close to having everything ready. We have been working together to finalize a lot of the operational details: the purchasing procedures, approval of the dedicated marketing collateral, and other things. And shortly, we'll be conducting training for the Terumo sales force. Once that's all in place, they can hit the market and start selling. Just one thing to add, I think it's worth noting, we'll be releasing a new CytoSorb CPB procedure pack that has been specifically tailored for use in cardiac surgery.

This CytoSorb CPB kit contains not just CytoSorb, but also contains all of the components that allow customers to quickly and easily implement CytoSorb on the heart lung machine. It's really nicely done. It showcases some of our new packaging and graphics; which I think are also great, and has been very well-received by the market. So, it's a good time right now on that side of the

business. Overall, things are going well. We expect Terumo to place an initial order and launch very soon. Given their installed base and what we've seen so far, I think they should be able to make a strong push into the market with what we have.

In addition, in response to your other question, with REFRESH data in hand, I think that would only accelerate and enhance what they are already doing. I view it as additive to what I think is already good situation.

**Jason Wittes**

Great, thanks. I'll jump back in the queue.

**Moderator**

We'll go to Andrew D'Silva with B. Riley.

**Andrew D'Silva**

Hi good afternoon, thanks for taking my call. My question relates to the sales dynamic during the period. Can you give a little bit of color or granularity on the spread? Was it pretty evenly spread out between direct and indirect sales? And then you mentioned in your prepared remarks that you are becoming a *de facto* of standard of care for certain indications. Can you maybe elaborate on those indications as well?

**Phillip Chan**

Sure. I think because we started direct sales about a year before we even began any kind of international sales, direct sales continue to represent a bulk of our overall sales. Although distributor sales as well as partner sales are strengthening, there is that natural delay. We expect that Fresenius, Terumo and Biocon will begin hitting on all cylinders next year and the investments that we've made in our international sales division will begin to bear fruit. We expect that these distributor and partner sales will pick up significantly going forward.

In terms of your other question, there are a number of indications where CytoSorb is being used regularly today. We have mentioned this on previous calls. One of the areas is in trauma and the reduction in myoglobin caused by crush injury to muscle. This myoglobin can lead to kidney failure and can increase the risk of death in trauma patients significantly. Certain hospitals like the University of Hamburg - Eppendorf and others have been incorporating this into their treatment modalities as a *de facto* standard of care because they have seen it work so many times and they have seen it reduce myoglobin and contribute to positive outcomes for their patients so many times that they are using it on a regular basis in those select patient populations.

In the area of cardiac surgery, we are seeing CytoSorb being used in high risk cardiac surgery patients either where they enter surgery unstable from diseases like endocarditis or heart failure requiring vasopressors, or as a prophylactic method when patients are undergoing complex cardiac surgery procedures such as the ones that we are evaluating in the REFRESH I and future

REFRESH II studies. But there are many others applications like liver failure, where we are seeing it used more and more. And although we may not be necessarily *de facto* standard of care in these applications yet, we can definitely see a path to getting there without necessarily doing large scale pivotal studies given the tremendous need for new therapies in these various areas.

**Andrew D'Silva**

Great, thanks. A quick follow-up. Since direct sales are still the bulk of revenue, I'm assuming there were no major stocking orders that would have influenced the quarter or were out of the norm?

**Phillip Chan**

I think it's very encouraging that our business is based predominantly on reorders, as well as steady organic growth and usage of our product throughout the markets that we serve. There is always going to be a little bit of lumpiness based on initial stocking orders and other things, but by far the vast majority of our revenues are from reorders coming from existing customers who are using the product on a continuous basis.

**Andrew D'Silva**

Great. Thank you very much. Good luck going forward.

**Phillip Chan**

Sure. Thanks, Andy.

**Moderator**

Our next question comes from Jason Kolbert with Maxim Group.

**Jason Kolbert**

Hi guys, a couple of questions. Can we talk a little bit about margins? Right now gross top-line margins seem to be running around 45% which is not bad. At what point does that scale start to tweak a little bit higher?

**Phillip Chan**

Thanks Jason. Just to be clear, our blended product gross margins today are currently 68%. This is a combination of higher margin direct sales, blended with lower margin, indirect distributor and partner sales. What you're referring to is the gross margin from total sales, which includes grant income. Those margins are typically lower because we bill our R&D expenses against those revenues on a fuller basis. So that's why the margin appears to be lower but when we look at just our product gross margins, they are actually quite high.

**Kathleen Bloch**

To add to Phil's comments, I do think that there are a couple of things that are going to contribute to even higher product gross margins in the near-term. Probably the most important reflects a

number of our initiatives that are underway to reduce the costs of CytoSorb production. That's probably going to be significant not in 2016, but in 2017 where I think it will have a big impact. The second thing which is less linear will be establishing reimbursement within many of the countries that we're in. This is a major focus of the Company and if we are successful, it will strengthen pricing that will have a secondary influence of improving product gross margins.

### **Jason Kolbert**

Got you and that makes sense. I'm looking at the model and that's very consistent with the way we are modeling the Company. Phil, can we change gears to talk a little more about the clinical outlook? REFRESH II becomes very critical particularly when we start talking about it starting in 2017. Can you just talk with me a little bit about what kind of discussions you're anticipating with the FDA, particularly in terms of the regulatory path and maybe the size of the clinical trial? I realize it's very early and you're probably limited in what you can say. Maybe you could talk just a little bit about what would be the best-case scenario for you in terms of the outcome with discussions with the agency?

### **Phillip Chan**

Sure, to reiterate again, I believe that we have the data necessary to move on to a REFRESH II study based on our safety as well as free hemoglobin data. That was the purpose of REFRESH I and I think that is very important. The second part of the story revolves around what is the clinical path that the FDA will guide us on: will it be a PMA path or a *de novo* 510(k) path?

When we discussed this with the FDA prior to REFRESH I, our impression was that the FDA wanted to first see safety and secondarily, wanted to see whether or not free hemoglobin was a problem in our target patient population and whether or not we could predict those patients that were having problems with high levels of free hemoglobin. They mentioned there could be two potential paths to U.S. approval. One path would be potentially through the *de novo* 510(k) path where we could work to get approved as a tool to reduce free hemoglobin. We would have to demonstrate statistically significant reduction of free hemoglobin in a pivotal study, but we estimate that this study would be relatively small – probably no more than 100-150 patients at a total of a dozen or so cardiac surgery sites. We think we could complete this study within a year, at a relatively modest cost, and potentially be on the market in 2018.

In our own internal discussions, we believe that there are advantages of getting approved early through the *de novo* 510(k) path, but do realize that it's going to be very important to have clinical outcomes data to be able to support reimbursement and usage in the marketplace. We've talked about having an adaptive trial design where would get the data that we would need to get this approved as a free hemoglobin filter, but we would then keep the trial open and enrolling to get enough patients to be able to demonstrate clinical benefit of the device and certain clinical outcomes. So, that is one strategy that we could take.

But we continue to expect that the default pathway will be the pre-market approval (PMA) path where we would be looking at clinical outcomes as the endpoint of the trial. We estimate this would be roughly a 300 to 500 patient trial, taking place over the course of two years putting a potential approval in the 2019 timeframe. In this version of the trial, we would be looking to see if CytoSorb can improve clinical outcomes such as a reduction in the progression to acute kidney injury, a reduction in need for ventilator support, a reduction in the need for postoperative extracorporeal life support like vasopressors and extracorporeal membrane oxygenation (ECMO), and also days in the intensive care unit. We would hopefully be able to work with a major strategic partner on a trial like that, which we believe is certainly within the realm of possibility. With that said, however, the cost is manageable and we could potentially fund it ourselves.

**Jason Kolbert**

Phil, thank you for a very clear answer. I appreciate that. I think you hit all my points. Thank you.

**Phillip Chan**

Great. Thank you, Jason.

**Moderator**

We'll go to Brian Marckx with Zacks Investment Research.

**Brian Marckx**

Hi everybody and congratulations on the great quarter. Phil, wondering if you could talk about the free hemoglobin data at all and if you can add anything more in terms of what you had hoped to see? And then do you expect to announce the data prior to your meeting with FDA or your potential future investigational device exemption (IDE) filing?

**Phillip Chan**

Yes. I apologize but when I was interrupted earlier from the music, I think I was not as clear as I could have been. But with that being said, I should reiterate that Dr. Bartlett described the hemoglobin data as "promising". Based on our previous conversation with the FDA, I think the FDA was primarily looking to see that we had chosen the right criteria to select patients with high levels of free hemoglobin and that we were able to reduce those levels or at least show a trend to reduction of free hemoglobin with our CytoSorb device in this small safety and feasibility trial. As we have said many times previously, it will be the pivotal study where we would need to demonstrate a statistically significant reduction in free hemoglobin, if we haven't demonstrated it already. Given all of that, we believe that we have the data that the FDA needs to give us the green light to move forward with the REFRESH II study. We won't know that until obviously talking with the FDA and presenting those data to them, but we feel that the data that we have are compelling.

**Brian Marckx**

Okay. In terms of the clinical sites, are there any additional clinical sites that you will need to bring on board with REFRESH II and are there any requisite institutional review board (IRB) approvals that you will need before moving into REFRESH II?

**Phillip Chan**

We think that we can jump start REFRESH II quickly with just a modification of clinical trial contracts from our existing sites. This will allow us to begin enrolling initial patients very quickly in that study. In a *de novo* 510(k) study, we will look to extend that trial site base from REFRESH I to a dozen or so centers. So we don't think that process will be delayed much if we went down that route.

Now if we went through the PMA path, we believe that this study would require approximately 40 sites in order to enroll the trial rapidly. Although we have seen that a single site can enroll many patients per month, we are taking a more conservative view of enrollment of roughly half a patient per site per month. We believe this is quite conservative, particularly given how easy it is to run this study. Again, all you are doing is using CytoSorb during the open heart surgery procedure in the heart-lung machine and then taking blood samples and recording data on those patients during their ICU stay in the recovery period. This is not like an ICU trial where you're treating for seven days. This is a "one and done" kind of trial that is much easier to enroll.

With that being said, a PMA trial would require a ramp up of our sites and we've already been talking to many well-regarded cardiac surgery institutions to participate in our REFRESH II study. But again, we would be right there starting with a number of our existing sites for REFRESH II and would look to rapidly bring on additional sites for a PMA trial.

**Brian Marckx**

Great. Thank you, Phil.

**Phillip Chan**

Sure. Thanks Brian.

**Moderator**

Thank you. At this time, I'd like to turn the conference back over to management for any additional or closing remarks.

**Phillip Chan**

Thank you. If there are no further questions, I just want to thank everyone for joining us on the call today. And if you do have any questions that did not get answered, please feel free to reach out to Amy Vogel at [avogel@cytosorbents.com](mailto:avogel@cytosorbents.com) and we will try to get back answers to your questions where possible. Thank you very much, and have a nice evening.

**Moderator**

Thank you. That concludes our conference for today. I would like to thank everyone for their participation. Have a great day.