Q&A with Andrew Lees, President of Stoke Med providing Patient Specific 3D Printed Models to Physicians and Surgeons for Demonstrations, Pre-Operative Planning and Practicing Surgical Procedures

Andrew Lees
President

Stoke Med
www.stokemed.com

Contact:
Andrew Lees
484-320-7744
support@stokemed.com

Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine

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> - Andrew Lees

CEOCFO: *Mr. Lees, what is the concept behind Stoke Med?*
Mr. Lees: Stoke Med is a service company to provide patient specific 3D printed models to physicians and to surgeons to use for demonstration, planning and practicing surgical procedures.

CEOCFO: *What is the status of 3D models in the medical community today? What is the atmosphere?*
Mr. Lees: 3D printed models for medical use is a relatively new thing. 3D printing is most commonly used for prototyping in the product development process. Affiliate companies such as Stoke Ventures are using it in this way. However, its applications in the medical industry are relatively new. There have been recent developments and a growing understanding of its benefit to be used for planning and practicing of medical procedures. There is another part of the whole 3D printing space in medicine looking at printing live tissue. That is not what we are focusing on, but that is also an exciting part of the medical 3D printing space.

CEOCFO: *What have you developed at Stoke Med?*
Mr. Lees: We developed a process for efficiently and accurately isolating tissue structure such as bone from a CT scan. We are then able to take that information and create a smooth, detailed 3D print. The models are very robust and accurate to the patient's anatomical area of interest. A model could be used, for instance, to determine exactly how much bone structure is in the maxilla of a patient's facial bone structure so an oral surgeon can accurately plan the placement of an implant. That can be very difficult without something in your hand that you can actually look at and touch and practice on. Our efficiency, and the fact that we are 100% focused on these kind of models for surgeons allows us to be incredibly cost effective for our customers.

CEOCFO: *What is the process so that you are able to look at the CT scan, isolate the correct data and then come up with a model? What have you figured out that perhaps others have not?*

Mr. Lees: We have figured out how to accurately, and efficiently isolate the tissue structure from a scan. It's that efficiency that saves our customers a lot of money on our models, and the accuracy is obviously very important as well. We're also making really smooth, accurate, and strong models. Not all 3D printers are created equal and it's very easy for companies and even hospitals looking to start printing anatomical models to get equipment that's not well suited for their needs. When I started the business I looked around for competition but no company that I am aware of is providing this service in the US. The other thing that sets us apart is simply jumping on the opportunity at the right time to be an economical provider of this service to surgeons. In the future some hospitals can look at getting printers themselves and hiring technicians to do a similar isolation of tissue structure. However, then each hospital has to dedicate resources to that in-house which is not usually an efficient use of overhead. Instead it's more cost effective and convenient to use us for patient specific models.

CEOCFO: *What are the difficulties in isolating that tissue structure? Why is that hard to do?*

Mr. Lees: There is a lot of tissue data and noise captured in a scan. The easiest way to look at it is that you've got all these different materials in the body, all with different densities. Bone has a different density than muscle which has a different density than skin and so on. What we're doing is filtering out the densities we're not interested in to get to the tissue we want a model of. That is difficult because you are going to get some fragments of densities that you are not looking for depending on how you perform the isolation. It's easy to not get the correct isolation and end up with tissue you don't want, too little of the tissue you do want, or even a exaggerated interpolation of the desired material is possible. For 3D printing you need a clean model that doesn't have little spots of unwanted anatomy floating around here and there.

CEOCFO: *Where are you today with Stoke Med, with the business, with your products and services?*

Mr. Lees: We are in the early stages but we've had success with our service so far. Our customers have been really happy with the models we've made for them and the cost is much better than they were expecting before they found us. We are working to scale up that success by getting in front of more surgeons and demonstrate to them the value of what we do. It's not that they are currently performing their surgeries wrong, just that we can help save surgical time and cost which makes for a better experience for patients as well.

CEOCFO: *How are you reaching out? Are you reaching out directly to physicians?*

Mr. Lees: That is the million dollar question! We are reaching out directly to some doctors, although that's difficult to do. It's tough to get one on one time with them because they are so busy and they are really just focused on the patients they have on any given day. However, we are still making efforts to do that and we are making efforts to advertise online and to target those surgeons and their teams who can say, "Hey, I've seen this technology, I've seen this business called Stoke Med and I think that they can really help us in our surgical planning." I think just the repetitive nature of getting in front of the right people and then their word-

of-mouth endorsement will help tremendously. We are also trying to get in front of potential patients as well, because we will also want them to ask their surgeons if an anatomical model could be helpful to their surgery.

CEOCFO: *Do you need a reimbursement code?*
Mr. Lees: So far, the surgeon has been covering the cost, because it is so valuable. They are saying, "Maybe it is $500 for this model, but it will end up saving $2000 in cost, because every minute counts in surgery". However, I think there will be different ways of spreading around the cost in the future.

CEOCFO: *Are you looking for partners or investment funding of any type?*
Mr. Lees: I am always open to it. I think what I would be most interested in is entertaining the idea of a strategic partner who can add significant value by opening doors and getting us in front of more decision-makers at hospitals.

CEOCFO: *There have been changes in the 3D printing industry. How does the current state of 3D printing help in your mission?*
Mr. Lees: There are so many new materials that are being used, and more accurate, faster processes that generate more detailed prints faster and at a lower cost. These improvements in 3D printing allow us to offer better models to our customers. Right now, our models simulate bone structure, and that's great because there is a lot of applications for this. It is rigid plastic that you can drill into so you can practice procedures and design hardware very easily. Where we would like to go in the future is to formulate materials and use printing processes that get soft tissue models closer to the feel of the actual tissue structure. There are plenty of applications for that as well.

CEOCFO: *Address our readers in the investment and healthcare communities. Why is Stoke Med an important company?*
Mr. Lees: Stoke Med is important because it is really taking pre-operative visualization to another level. We're helping to take patient data off the screen and put it into the hands of surgeons. Let's say that you are trying to remove a tumor. If you can see it on a screen you can get a pretty good idea of where it is and what you have to do to remove it. However, visualizing the same tumor with a model in your hands before a surgery gives you an exact understanding of how to remove it and you very well may find something you might have missed without the model. I think that's critical.

Stoke Med
Patient Specific 3D Models