



Lytham Partners had the opportunity to interview executives Barry Cohen, Chairman and CEO, and Dr. Farhan Taghizadeh, Chief Medical Officer, of AVRA Medical Robotics, Inc. (OTCQB: AVMR).

LYTHAM PARTNERS [LP] Barry, can you please give us a brief background on AVRA Medical Robotics and how you got involved?

BARRY COHEN [BC] Thanks for having this interview and I'm happy to tell the AVRA story. I've been in Sales, Design, and Manufacturing of products from music packaging, steel, chemicals, plastics, robotics, boatbuilding and owned a stock brokerage company for many years during my business career. I had never heard of robotics in surgery, but about 14 years ago when I first learned of a company called Intuitive Surgical (ISRG), I was absolutely amazed to see that they applied much of the technology that I understood, but used it for surgical procedures in people. It captured my imagination and I was very taken by it. I was taken enough to literally move to Germany in 2006 to get involved with the German Space Agency (DLR) Institute of Mechatronics and Robotics where I spent approximately eight years overseas fine tuning my knowledge of medical robotic systems. I always knew Germany was the key place for engineering, so I took advantage of my experience and the time I had for the travel and exploration.

[LP] What are you planning on doing with AVRA and how will it be different from what is currently in the marketplace?

[BC] AVRA is developing an Algorithm to produce software programs to manage a semi-autonomous operating medical class robotic system. Other known med robots that you allude to and call robots are not really robots; they are mechanical manipulators which cannot do anything by themselves. The very large difference between AVRA and the other med robot companies is that AVRA has a 7 DOF (Degree of Freedom) intelligent robot and creates a medical algorithm architecture and software programs to build an intelligent medical robotic system to generate semi-autonomous surgical procedures, with the ultimate future goal of a fully autonomous robotic surgical system.

[LP] So, the secret sauce is the algorithm architecture, the robotic arm, its software, the embedded artificial intelligence ("AI") and the deep learning it will provide, is that correct?

[BC] Yes, all of that is correct, but in timeframe order, robots have been around since the 1970s and they have basically been the 'pick and place' robots. The subsequent evolution of manufacturing brought forward a series of arms that could come closer to the

human actions of the elbow, wrist and hand, but these robots didn't have the ability to do anything but one specific ordered task.

During this evolutionary process, the use of cameras, sensors and multiple axis on the robotic arm made them a lot more flexible, and they came down in size and up in functionality. So, when you start talking about the basic use of a robot arm to do something, it can be tailored to put the dashboard on a car, to screw and glue pieces to larger pieces, but in the area of medical robots the AVRA requirements are far, far more explicit, very detailed and of course much more critical. The medical robot's cameras, sensors, and AI enhanced software program all operate in sync. We produce an arm that is intelligent, and the more procedures the system does the more it remembers what it does, and therefore creates an enormous library of intelligence or data to recall, not to think, but to recall, and take a micro second action based on previous experiences and outcomes. So, a robot using AI can actually capture a program or a procedure, act on it by rote and that's where you are getting into the difference of what you called med robots and the AVRA System.

The AVRA arm is an intelligent system with built-in software programs, adaptable to many, many situations and the more procedures it does the smarter it gets. The direction of this company is to create a very serious, intelligent robotic tool to be surgeon directed, and bring more precision and autonomy to surgery.

[LP] The AVRA robotic arm you refer to is an open platform – 'plug and play' – can you explain what that means?

[BC] Well, let me draw a parallel. The doctor's hands can pick up and use a wide range of different instruments. It's the same with the AVRA robot. The arm itself holds the instrument but can also do the procedure. It follows a program the doctor selected for the procedure. If you completed one type of procedure for, say a micro needling event, you can change instruments and programs for the arm to proceed to the next procedure e.g. tattoo removal, targeted biopsy, delivery of biologicals, etc. Thus 'plug and play'.

[LP] How long will it take before you can commercialize your robotic arm?

[BC] We are about to find that out. AVRA recently announced that it has started the FDA process. AVRA's CMO and CSO are experienced with FDA procedures, and have successfully taken medical devices to complete approvals. We have also retained the Horizon Phoenix Group with 35 years of experience headed by Tim Duggins to direct all FDA Regulatory operations for AVRA. We are at the start of the



FDA process and expect an 18-month timeline for an approved initial product. This schedule is based on the belief that we will use previously FDA approved instruments and modify (robotize) them to the arm that has already received the CE Mark by the EU. We have the proper team in place to deal with the FDA so investors should stay tuned as we will update as appropriate.

[LP] What are some of the initial markets and applications you'll be going after in the medical industry and why?

[BC] The very first area to be addressed by the AVRA robotic system is the aesthetic surgery area, skin being the largest organ on the human body and wrought with many problems from melanoma to various lesions and cellulite removal. The natural pathway to future markets is dermatological surgery and the targeted biopsy of internal organs.

[LP] How much are these machines going to cost and how long is the payback?

[BC] In the world of robotics, people are very accustomed to the \$1-2 million target. Those robots carry a 10% service charge for annual maintenance. I've always considered that to be extremely expensive and prohibitive to bringing lower costs to healthcare. The AVRA system is quite simple. It is a single arm and in its current form, we expect the price to be under \$200,000. We think the payback could be approximately 5 months, depending on the volume of the practice that adopts the arm.

[LP] Do you have dermatologists lined up ready to try/test your product?

DR. FARHAN TAGHIZADEH [FT] We do. In fact, one of our key opinion leaders is in New York and he has already recruited several dermatologists to begin the process of testing the system. Barry has also communicated with several dermatologists in Florida and I've connected with a few in California, as well with the distribution network I work with and they are all willing to give it a go. So, we have more than enough physicians lined up to proceed with clinical trials.

[LP] Can you walk us through what a typical procedure would be like with the AVRA device? How much interaction and control will the doctor have?

[FT] Essentially what has to happen is that the physician selects a specific program for each individual patient. The system is

responsive to the physician's command, providing the plan for a customized procedure based on all the various analytics and measurements we've gathered from our image data collection from that patient -- including skin tone, texture, wrinkles etc. After the physician approves the customized plan, the AVRA system will manage the treatment autonomously. Physicians can wide-type or modify the treatment protocols through the system's software interface. The physician will be able to pick from a standard list or modify additional or extended treatments if desired.

[LP] Why in your opinion is the aesthetics a good initial market for AVRA?

[FT] There are many reasons for it. First, the aesthetics market provides a direct access to consumers in a cash-based marketplace, so you are not dealing with a lot of third-party payers, which usually complicates things. Unless you have regulatory approval, it can take third-party payers anywhere from 5-10 years to adopt certain procedures, especially in ancillary specialties now, and their approval rates are extending. Second, this market is ripe for automation. There's probably no bigger gap between demand for services and the ability to consume services as there is in the aesthetics industry compared to any other industry in the U.S. We estimate that there's probably a gap of about 50-60 million Americans who want access to these procedures but because of the lack of automation and the failure of cost containment around issues of automation, they just can't afford the cost. Third, the skin care industry is growing. Our CAGR is between 18-21% per year right now, so there is no faster growing space in medicine than the aesthetics industry. Fourth, we do have a good interface between some of the medical side of the aesthetics industry and this device.

As we move forward with certain procedures, some of them may be amenable or capable of getting third party reimbursement, but we are not going to sit around and wait for that, meaning that the aesthetics will kick in and then other medical dermatological opportunities will follow. This is very typical of devices in our space right now. Currently, we believe there is no bigger gap between demand and failure to provide adequate supply than there is in the aesthetics industry.

[LP] Why will the doctors/patients embrace the AVRA robotic arm?

[BC] That is an important question. Was America ready for the driverless car? Haven't airplanes operated on autopilot for decades? The world has changed very dramatically in the last 20 or 30 years and it is a very simple mathematical equation. The world



population is simply outpacing the number of trained physicians, surgeons and other professionals. The most efficient way to deal with this is to bring automation into the world of medicine the same way automation has been brought into manufacturing, diagnostic imaging, etc. It is the only way to maintain pace and keep up with the world's population growth to provide good healthcare at reasonable prices.

[FT] There are a lot of reasons for doctors to adopt the AVRA robotic arm. First, physicians like new technologies and with this device there is standardization and better outcome opportunities. So, for example, physicians usually will use extenders when doing a procedure, and there can be a lot of variability in how the extenders are educated or the capacity to provide certain therapies. By using robotics, you standardize what the extenders can do, and the AVRA robot uses extenders, that's number one. Second is economies of scale. Physicians know that automation can improve profitability in their practices and also improve patient access. So, you can essentially have the capacity to provide more services to more people at better prices, which can help with growth. Third is interest in innovation. Because physicians tend to be very fascinated by new technologies, it has been the trend in American medicine in the past 30-40 years that new technologies do have market space based on their capacity to capture the imaginations of physicians and healthcare providers.

So, I think that that is probably the initial reason that people will adopt the AVRA robotic system. And when we look at what we are trying to do in terms of being able to extend out the interchange of end effectors, I think we have a great opportunity of having one robotic arm potentially manage multiple types of procedures, which is something in medical robotics that has never happened. Meaning that most procedures offered by a robot are singular and slowly they are built to the second or third application. We could potentially come into the market with multiple procedures because the AVRA robot has the capacity to interchange different end effectors.

[LP] Are there other applications for your robotics besides aesthetics? What might be some other applications?

[FT] Absolutely. It's a wonderful tool for diagnostics and analytics. Again, you are then paying into the third-party system, so there's some limitations, but yes, you could use the same robotic arm to do very significant analytics. You can also use the robotic arm for future therapeutics, for a variety of skin ailments. So yes, what

we can do in aesthetics, is the same as we can do with traditional medical opportunities.

[LP] You've assembled, what looks like the 'Dream Team' of robotics and aesthetics in your management group, medical advisory board and scientific advisory board – how did you accomplish this and what has drawn them to help AVRA?

[BC] When I first looked at the necessary combination of engineering, manufacturing, surgery and hospitals required for robotic surgery, it all seemed quite complex. But because I had the time and resources to invest in this, I wanted to get it right. So, my first couple of years I spent a great deal of time traveling, interviewing and being interviewed by a wide range of surgeons globally. I would say I was very lucky. These people were far more interested in the next generation of robotics, what they could do for training, what they could do for patients and what they could do for medicine in general which was, for the most part why they were surgeons in the first place. They were all very informative and helpful. I spent the time and I spoke enough about what AVRA wished to accomplish that they decided to join the team and help me. I'd like to say that, unlike any other med robot firm, most of the AVRA team has been together for over 10 years. So, we have made a marriage of some complex personalities, all very gifted people, and they certainly comprise the four most experienced robotic surgeons in the world, by far. And the science team – all are very highly accomplished people in the world of software and systems engineering who brought a great, great resource to this company.

AVRA has been very fortunate that timing, circumstances and the support offered by so many highly accomplished people from different professions around the world have come together. By combining their unique talents and desire for innovation, we will provide medical professionals with the next generation of Medical Robots – an AI SURGICAL ROBOTIC SYSTEM – to further the excellence of their work caring for patients.

[LP] We would like to thank Barry and Farhan for their time and participation in our Executive Interview Series. For additional information on AVRA, please visit the company's website at: www.avramedical.com.



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