The Thomas G. Wharton Memorial Lecture

Investing in Our Future

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MODERATOR JAMES BEAVERS (Houston, Texas): Well, we have come to that point in time where our current president gets to regale us with his vision, his speech for this year's meeting. I want to tell you a little bit about Joseph Sistino, your current president.

Joe was born in New York City, in Queens, right near JFK Airport, he said. He graduated in 1974 from the State University of New York with a Bachelor of Science in Cardiorespiratory Sciences. He graduated from Long Island University in 1980 with a Masters in Health Administration. And that still was not enough. He graduated from the Medical University of South Carolina in 2005 with a Masters in Clinical Research.

Richard Chan was Joe's first instructor and later his first employer at the Long Island Jewish Medical Center in 1974. Joe became Chief Perfusionist of Montefiore Medical Center in the Bronx, New York, at the age of 26. He moved over to Columbia Presbyterian Medical Center in New York as Chief Perfusionist in 1990. He then moved to the Medical University of South Carolina in 1994 and became the Director of the perfusion program at the Medical University of South Carolina in 1999.

With all of this, getting to know a little more about his educational background, I am amazed that he is still a friend of mine. Please welcome your current President of the American Academy, Joe Sistino.

[Applause]

PRESIDENT JOSEPH SISTINO: Members of the Academy and invited guests, it is a great honor for me to present the Thomas G. Wharton Memorial Lecture this year.

Thomas G. Wharton invested in our profession. He recognized the impact that perfusionists around the world have on improving patients' lives and supported the establishment of this organization with his own funding. Tom served as the first Executive Director of the Journal of Extracorporeal Technology, the Executive Director of the American Society of Extracorporeal Technology, and the Executive Director of the American Board of Cardiovascular Perfusion. He was the unsung hero to many perfusionists in the early days of the profession, and unfortunately was taken from us at young age, ironically after suffering a heart attack.

Today I would like to remind you of his vision to invest in our profession. This conference has been focused on the future of our profession, and I would like to continue the discussion and present what I believe is the way forward.

The title of my presentation is "Investing in Our Future" Charles Evans Hughes was the Chief Justice of the United States Supreme Court from 1931-40, and his words, helps me to keep the focus on the future……"One of the important lessons in life is that success must be continually won and is never finally achieved. Every day puts at risk all that has been gained, the greater the achievement, the more serious the risk of loss. It is not worthwhile to talk of the end of the period, for you are always at the beginning of a new one."

One personal beginning that is certainly monumental is the birth of your first child. After recovering from the first few months of sleepless nights, you suddenly realize that you will have to start planning for your child's college education expenses. Taking into account projected increases in college tuition and the effect of inflation, you will need to start saving right away. Twenty two years later, you're glad that you had the foresight to start so early.

We, as a profession, need similar long-term planning to assure our stability and viability in the future. This is going to take careful planning, hard work, and the combined efforts of many to achieve a significant level of success in the future. Today I would like to outline the important steps in this process using the analogy of financial investing. I asked a few of my friends who are financial experts for their advice.

Meet the Experts…

The experts that I consulted have approximately 30 years each of business and investment experience. Mark is a bank vice president responsible for millions of dollars in bank investments, David is a hotel president who specializes in hotel expansion, and the Dave is a retail executive with a concentration in business expansion. I turned to them for their investment "pearls of wisdom". My goal was to translate their investment strategies into organizational strategies. By combining their key investment strategies and then relating them to our

profession, we can analyze our current position and plan for the future.

Let us first all agree on the ground rule that investing is not a game. The goal is to carefully develop intelligent and rational strategies to be successful. What I am going to present will be their key points, synthesized into 10 rules for investing in our profession.

1. Know what you want to be. – Have a vision of the future.

My friend Dave said that this is so important. Before he joined his present organization, they had never asked themselves this question. They were too involved in their daily activities to look at the big picture. Does that sound familiar? What is the role of the perfusionist of the future? Educational programs need to consider this question as well as the professional organizations. Our roles were defined twenty more than 25 years ago when our professional organizations and certification boards were established. How will this change in the future?

Students graduating today expect their careers to last 30-40 years. Are they ready for the changes our profession and health care? What are some of the predictions for health care in the future? James Canton in "The Extreme Future: The Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years" discusses his prediction for health care in the year 2025. According to Dr. Canton who has served as an advisor to many US presidents and multinational companies, "Longevity Medicine will be the largest global market in the future. Speculation about disease and treatment in current medical practice will give way to a more precise predictive and health enhancing type of medicine. This advancement will have as it core, the ability to peer into the genomic map of a specific individual from birth to death". Related to cardiac care, he discusses companies that are developing a system for a "catheter-based navigation system to guide laser beams to heart muscles for relief of angina" that will eliminate most coronary artery bypass surgeries.

Another development will be the use of "nano devices (100,000 times smaller than the head of a match) to deliver drugs for procedures on demand from inside patients".

Thinking about the future and who you want to be is probably the most important step.

2. Identify your resources and invest in yourself.

My friend Mark from the bank told me that before you can invest you need to identify your resources. In his book "The World Is Flat: A Brief History of the Twenty-first Century", Thomas Friedman said that companies that were successful understood their strengths and developed them. As we look at our profession we need to ask the question "What do we do well, what are our strengths?" That is where we should look for opportunities. Whether it is blood conservation methods, emergency response, organ preservation, teaching cardio-respiratory physiology, coagulation testing, ventricular assistance. There are many areas that we have strong clinical knowledge and we have to look for opportunities related to the things that we do well.

In Friedman's book, there were two examples of how companies explored new opportunities. One company that was successful was UPS. The UPS shipping business depended so much on computers that they developed their own computer repair facility in Chicago. One their customers was Toshiba, who was using UPS to ship computers back to them for repair. UPS offered to do the computer repairs for Toshiba in Chicago which is centrally located rather than shipping the computers back to Toshiba. This reduced the repair cost and turnaround time for Toshiba repairs. Because of their computer expertise and the systems that they developed for tracking shipments, Ford Motor Company uses UPS to track the entire distribution of their assembled cars. UPS created a niche for themselves servicing many companies that needed highly sophisticated just-in-time inventory and inventory tracking. This was based on an area of expertise that they already had.

On the other hand, Kodak was not very successful because they were very slow to recognize the changes occurring with adoption of digital photography. They lost a great deal of business related to the demise of film photography. Kodak, the greatest name in photography, has a long term survival that is now questionable.

Invest in yourself - Our profession needs more individuals with graduate education and terminal degrees. The best move that you can make is to invest in yourself. There is a wide range of online education opportunities available. The profession as a whole needs to be more involved in determining its future. The only way that this will occur is with "early adapters" in the profession demonstrating that new applications of perfusion technology are safe and effective. This takes the scientific rigor associated with higher education.

The well known cardiac surgeon, Dr. Alain Carpentier, completed a chemistry degree to solve a clinical problem at 35 years of age after finishing both medical school and surgical training. Using this additional knowledge, he discovered glutaraldehyde to use for tissue preservation. Identifying your

resources, and increasing your resources through education opens up new opportunities.

3. Analyze your competition

My friend Dave in retail emphasized that it is very important to understand your competition. What are our competing technologies? How successful are they and how will they affect us. We are all aware of a few, but the technology is moving at a much faster speed that you can imagine. Computer speed is doubling every year. The effects of this will change the health care system in many ways due to tissue engineering, nanotechnology, robotic surgery, to name only a few. In addition there will be a shortage of personnel in many heath care professions in the future due to the aging of the population and the decrease in the number of students graduating with science degrees. We need to be "plugged in" to these opportunities.

Perfusionists have been primarily associated with heart surgery for many years but many of the new opportunities will be outside of the OR. Dr. Bartlett gave these same predictions for Perfusion in the year 2050 at the Academy meeting several years ago.

My friend Dave said that many times competition is the driving force for change and that even if you do not have the resources, you must respond to it in order to remain "in the game".

4. Have both short and long term plans.

Dave in retail also emphasized the role of importance of short and long term plans. The role of the short term strategy is to minimize risk. You need to be constantly analyzing the outcomes of your short term strategy and make corrections to insure the success of the long term strategy. This is true for any business or organization and is the role of the strategic plan that we will be developing this year under our next President, Bob Kroslowitz. People who go through life being reactive victims of the future often miss that you can change the future by first changing your perception of it.

5. Diversify

My other friend David in the hotel business spoke about diversification. He said this is one of the one of the golden rules of investing to reduce risk. In terms of a profession or an organization diversification can take on several meanings. First, it means diversification in the people in the organization. In is important that the organization welcome members with opposing views and different ideas. Limiting the discussion only serves to perpetuate the status quo and denies access to new information.

Many times in history the birth of a new idea was radical at the time and went against the majority opinion but in the end it was monumental in terms of changing the direction. In 1951 they told DeBakey after his the first aneurysm repair, "this is laudable but unfortunately only applicable in a small percentage of cases". In 1955 the NIH and AHA stopped funding of any projects for the study of heart-lung machines. At the time there was also absolute unanimity among the "authorities of the day" that bubble oxygenators would not succeed.

Dr. Frank Spencer summarized in his AATS Presidential Address how new ideas were introduced into cardiac surgery. New ideas were: 1 -stimulated by the death or inadequate treatment of a patient, 2 - one person was the intellectual leader, 3 - team was assembled later and was a crucial component of success and 4 - usually young < 45 years old and only 1-3 years after residency. Examples include Drs. Carpentier, Cooley, Kirklin, Lillihei and Starr. We need to encourage students and younger perfusionists to become involved and remain involved with national organizations. This is important in the continuation our profession and the process of developing new techniques and ideas.

Diversity can also mean increasing scope of practice. Our profession is known primarily for its role during heart surgery, but the technology that we support encompasses many applications, some of which are not yet in clinical practice. Remember many of our "predecessors" in perfusion emanated from the research labs, and we need to go back there to be part of new technology and play a role as it emerges into clinical practice. A good example of this is tissue engineering. There may be a role for perfusionists in the development and testing of "bioreactors". These bioreactors are organ preservation devices and like miniature heart-lung machines they support tissue growth and preservation.

Tissue engineering will have applications in almost every area of medicine and the exponential growth of research in this area is testimony to the rapid progress that is being made. Organs manufactured from the patient's own tissues are the ultimate goal, and major steps towards achieving this have already been accomplished.

We need to be constantly assessing the opportunities. Be available for consultation and develop the services that you can provide and then report back to perfusion organizations so that we are all aware of the new applications of perfusion related technologies. This will help to expand our scope of

practice and increase our value to our respective health care facilities.

6. Risk analysis

Mark from the bank spoke about risk analysis. He said that they use very complex algorithms to insure safety and maximize return. A common misconception is that that saving your money in a CD is less risky than investing it in the stock market. This not true most of the time because history tells us that risk is relative. Over a 15 year period of time it is clearly more risky to leave money in a CD than in good stock. The purchasing power of your money will erode due to inflation and taxes.

If we continue to base our profession on coronary artery bypass surgery, then our investment is like a CD and our profession will continue to erode due to new technology and therapies. Our risk of inaction is much greater than developing strategies to expand our profession and scope of practice.

7. Do research, develop predictive awareness and get the best advice you can

I asked all my friends what kind of research they do to and where do they get their information from to make decisions. They said that it was synthesized from many sources include including their own intuition, friends, expert opinions, and analysis tools that look at a lot of variables and combines information.

They all suggested examining the competition, speaking to suppliers and reading trade journals or magazines. They also suggested that there are many experts available that can help solve problems. In order to develop "predictive awareness" one needs imagination. Imagination is the number one tool for creativity and innovation. Without imagination, people cannot look at problems from new perspectives. Without imagination, people simply cannot dream up new ideas. And imagination is so much more than a basic tool for creativity. Imagination allows people to put themselves in the shoes of others such as customers and colleagues in order to understand them better and work with them better. Imagination provides the vision that allows people to see in their minds how a process will work from beginning to end. Imagination allows people to see what may go wrong in a process and envision how various solutions might solve those problems. Imagination allows leaders to envision the big picture and devise strategies.

8. Know where you are in the cycle –invest early

Mark from the bank also spoke about knowing where you are in the investment cycle. He said that "time is on your side". The earlier that you begin to invest, the greater the opportunity for a higher return.

An example of an opportunity is the fact that 93% of the world's population does not have access to open heart surgery. The ratio of heart center to population is 1/120,000 in the US and Europe, in China is 1/16 million, and Africa it is 1/30 million people.

We have many opportunities to use our knowledge of education and clinical practice to support the expansion of heart surgery throughout the world and help treat patients suffering from heart disease, many of which are routinely surgically treated in our modern medical centers. Mission trips are one way to establish relationships throughout the world and make an impact on this inequality. There a large imbalance in perfusion education throughout the world.

Coordination of these programs is also an opportunity to improve quality of cardiopulmonary bypass around the globe.

If we recognize the cyclic nature of every business or investment, we should be expecting declines in some areas of our scope of practice and actively looking for expanding areas of perfusion-related technology.

9. Set up guidelines and test the upper and lower limit of expected outcomes…

One of the rules for investing is to predict your outcomes based on aggressive and conservative strategies. The Advisory Board has a prediction for coronary artery bypass surgery over the next 5 years. A conservative CABG reduction is 18% and an aggressive reduction is 27%. The Advisory Board predicts an overall decrease in cardiac surgical procedures during the same period of 9.5%. We should not choose to ignore these predictions.

In the book "The Extreme Future" by James Canton PhD, one of the suggested activities for a company to see how they can survive through a bad business cycle is to make a strategic plan based on a loss of 50% of their customers. He calls this the "Kill your Future" game. This forces the company to reexamine their strengths, opportunities, and threats. The "Kill your Future" game results in a more focused strategic plan.

10. Reinvest all the time

An important mantra of all the experts and the final rule is that reinvesting occurs all the time. The benefits of cardiopulmonary bypass in terms of

facilitating heart surgery have been enormous. Many times I have heard perfusionists say "OPCAB is the best thing that has happened to perfusion" because it challenged use to improve our practice. The technology for smaller circuits and biocompatible coatings had been available for at least 15 years and only since OPCABS has the interest increased.

One area that we should invest in is the reduction of lipids in cardiotomy suction blood. Washing or reducing suction return is a limited short term solution. You can imagine the billions of dollars invested by companies to develop new shampoos and new cosmetics, yet we cannot solve a fundamental problem that affects our patients' long term neurological function. We need the technology to remove these lipids from the blood, but unfortunately, adequate resources have never been allocated to find the solution.

Important as I believe all these strategies are, there is one additional very important component. In the book "Good to Great: Why Some Companies Make the Leap...and Others Don't" by Jim Collins, he examined many corporations during the same 15 year period to determine what makes some successful and others in the same business unsuccessful. The following variables that did not play a primary role in the companies' long term success – executive compensation, strategic plans, and use of technology. These factors only assisted in achieving success. The key ingredient was the chemistry among the people in the organization, and how they worked together to achieve a common goal.

A major strength of this Academy is our ability to come together to provide great educational programs, and function as a dynamic network of health care professionals specializing in perfusion-related technologies. As we further examine our vision of the future, I have no doubt that we will successfully define the new directions for our technology.

I would like to leave you with a quote from my childhood hero, the great New York Yankee catcher Yogi Berra. Yogi played on 15 World Series teams and in 75 World Series games. Besides inspiring me to be a catcher, he is known for his philosophy called "Yogisms". The one that is relevant today is:

"When you get to a fork in the road, take it."

Yogi claimed to have said this while giving driving directions to his house in New Jersey. There is a fork in the road and either way you take, you will get to his house. But some people find this to be a very poignant quotation, meaning that when you find a challenge, the important thing is to move forward and overcome it. My goal today was outline some of our challenges, and help define the way forward.

I would like to thank my colleagues in the Academy for the opportunity and honor of presenting today, and to pay tribute to Tom Wharton for his foresight in investing in this great organization. Thank you.

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