INTRODUCTION:

Thousands of men are diagnosed with prostate cancer each year and undergo radical prostatectomies. There is now an alternative to traditional open surgery that uses small incisions for the insertion of surgical instruments. You are about to see a robotically assisted radical prostatectomy using the DaVinci Robotic System. In a live web-cast from Vanderbilt University Medical Center in Nashville Tennessee, surgeons will demonstrate this minimally invasive procedure and discuss its many benefits.

NARRATOR:

I think you will be able to see when you look at the video that the vision of the operative field is extraordinary, and that’s one of the major advantages. The surgeons simply can see so well because of the magnification and actually because of the lack of bleeding also.

INTRODUCTION CONTINUED:

During this live web-cast, email your questions directly to the surgeons in the operating room by clicking the M-direct access button the screen.

NARRATOR:

Hello and welcome to Vanderbilt University Medical Center in Nashville Tennessee. Today we are performing a robotically assisted laparoscopic prostatectomy using the DaVinci Robotics System. I’m Dr. Duke Harrell your host for today’s web cast. Dr. Joseph Smith is performing today’s procedure. The first thing I’d like to do today is go to Dr. Smith and have him explain where we are in the procedure at this point.

JOSEPH SMITH, M.D.

Well let me explain what we have done up to this point. This operating is proceeding quite nicely and I want to catch everybody up to exactly where we are. As we look in right, you are looking the pelvis and I am pointing in this direction which would be toward the feet, head in this direction, left and then right. Then we are looking straight
down onto the prostate. On top up here is the pubic arch, to this is bone. This is the bone of the pubic arch right here. The bladder has been taken down and reflected in this direction and in fact we can move up a little bit and there is bladder here, and if one goes even further, then we enter the peritoneal contents and the intestines which are in this place displaced toward the upper part of the abdomen. So here is the prostate and this is what we need to take out. What we have already done is clean up this area around the prostate to expose it, we have passed a stitch in this area here which helps control some of the bleeding, we will come back to that area. Then we have come up and separate the prostate from the bladder neck, and if we look right here, you can see our opening into the bladder. I am grabbing this tissue and you see this pink this pink tissue right here, that’s the interior of the bladder. The ureteral orifices, the opening of the kidney into the bladder is right there, it may be hard to appreciate but there is a little dimple right there so we are right where we want to be as far as separating it from the bladder. The other thing that we have done is dissect out the Vas Deferens, there is one, here is the other and then the seminal vesicles which are fairly large structures as you can see here which previously had been down there back behind the bladder. We’ve dissected this entire seminal vesicle out because that’s attached to the prostate and the prostate cancer can spread along the seminal vesicle so removal of the seminal vesicle is a portion of the operation.

We then separated the prostate from the rectum so you can see how I can actually lift the prostate up like this and the rectum is back here and we have a clean area where we have dissected it off and we have also done a dissection to preserve what’s called the neurovascular bundle on the left so the next part of the operation is a crucial part and that’s why we wanted to enter at this time which will be preserving the neurovascular bundle on the right side. So that’s were we are in the operation and that’s where we are going to continue. Duke you may to catch them up and then tell a little bit about the operating room setup.

NARRATOR:

First thing I’d like to do is introduce our operative room staff who I think are an essential portion of complex procedures like this. In today’s operation we have several important personnel; we have John Buturick as are Anesthesiologist, Dr. Matthew Scheuford, one of our Chief Residents in urology is assisting at the tableside with the patient, Rhonda Finnerty who serves as one of our scrub assistants and then our nursing staff; Donna Ford, John Nagey, Sean Oliver and overseeing them all Cathy Deal who is our Supervisor for the urologic surgery team, and I can’t stress enough, as I am sure Dr. Smith will agree how important having an experienced team in the operating room when you are performing complex procedures such as this is key.

JOSEPH SMITH, M.D.

Well, the surgeons were not part of it but the operative team is essential and we are really fortunate at Vanderbilt University Medical Center to have such a superb operating room team.
NARRATOR:

So if we go back live now to the actual surgery, we can talk a little bit about radical prostatectomy. I think if I were to describe radical prostatectomy over the last several decades it has certainly grown to I think be one of the primary methods of managing prostate cancer in appropriate patients and I think the goals of this surgery have always been multiple fold; they are not only to cure the cancer or what we call Oncologic efficacy but also to preserve or prevent side effects from the surgery and that mainly for prostate cancer surgery takes the form of preserving urinary continence, reducing the chance of erectile dysfunction or damage to the nerves that control sexual function in males when that is appropriate and certainly some men who do not have erections, do not need a nerve sparing procedure but certainly as we find cancers in younger and younger men, this has become a major source of side effects for men. And finally I’d say to reduce the operative and the perioperative risk of the operation such as bleeding, blood transfusion, time in the hospital or away from family and work and I think that many times over the last years it has been Vanderbilt’s goal to try to address all of these various parameters.

JOSEPH SMITH, M.D.

What we are doing now is working to separate the neurovascular bundle on the right side from the prostate and this is a key maneuver because if the surgeon becomes too close to the prostate, then he can come too close to the cancer and defeat the entire purpose of the operation which of course is to completely remove the cancer where as if one goes too far laterally, you can end up damaging these nerves and it’s a fairly fine line, there is a proper plane of dissection and it’s the surgeon’s job to find and enter that and doing this Robotically, I think you can see how well our vision is and that’s one of the advantages over open surgery. We will talk more about that as we go because I think with any operation, you have to compare what we can accomplish with this way versus what we can accomplish the other ways, and there are some advantages and there are some other areas were we are not completely convinced that the advantages are strong as some may feel but overall, we have certainly become very impressed with how well these people have done when we have done them Robotically.

NARRATOR:

Well I think I’d add into that, I think the experience at Vanderbilt over the last decade plus with open prostatectomy surgery has certainly had excellent results. And in looking back at things and what we’ve been trying to do here at Vanderbilt University Medical Center over the last year and ½ to 2 years is really compare open surgery. I think one of the major things that we’ve been struck by is that we have over the past decade has some of the lowest blood loss and transfusion rates reported in the literature here at Vanderbilt University Medical Center and certainly despite this, we have experienced even lower blood loss figures using the Robotic technology. There is a variety of reasons behind that such as the fact that the abdomen and pelvis is filled with an inert gas during this
procedure which tamponades compresses some of the small bleeding vessels that can, actually during an open procedure bleed quite profusely. I think the other key thing with that is that with this procedure as Dr. Smith has already mentioned, I think the vision aspect of things is quite critical. We know that being able to see the structure surrounding the prostate, being able to see the planes between the neurovascular bundle and the prostate as well a where the muscular sphincter which controls continence at the anterior part of the prostate, these are all critical parts of this procedure and certainly by decreasing bleeding in the field, as well as the enhanced visualization of having magnification with the Robot, we feel this has really added significantly to our management and to the performance of these procedures.

JOSEPH SMITH, M.D.

I will mention one thing as far bleeding because this is an appropriate time to do it. When we do this operation via retropubic route, which is with the incision, it just so happens that’s an operation I have done over 2000 times and we can do that with a less than 1% transfusion requirement, so doing it Robotically, at least in our hands does not lower significantly the risk that somebody needs a transfusion because even though it may be 0 with the Robot, 0 vs. 1 or 2% is not great, it's not a significant difference. But, it does not take much bleeding to obscure the operative field and you can seen this is pretty delicate, the areas here we have to cut and we have a little bleeding right now but this is hardly anything and if we had much more, even though it may not be enough to require a transfusion and the things we’ve talked about, it could make it more difficult to perform the delicate parts of the operation. And we are doing this here now completely sharply, you see I have a pair of scissors in my right hand, we are using some clips on blood vessels but were are going to scrupulously avoid any sort of electrocautery because that could damage any nerves nearby, so we are willing to get a little bit of bleeding because we can control that, its not going to create any problem and we’d rather have that occur that risk getting total hemostasis, that is total lack of bleeding at the expense perhaps of damaging some of the nerves.

NARRATOR:

I think that is sort of a critical comment by Dr. Smith.

JOSEPH SMITH, M.D.

(Let’s clip this here). So we are actually onto the pedicle of the prostate. You see a little squirting blood vessel right there. We are getting ready to stop that here in just a minute with a clip because this is the main blood supply to the prostate coming in from the right side. (Ok, good). When that clip goes down and you can see the bleeding has stopped already with the placement of that clip as we were able to get that dissected out so that we could quite anatomically put the clip right where we wanted it to be.

NARRATOR:
I was going to say I think that is a really important comment that you made earlier about avoiding energy sources near the bundles or near the neurovascular bundles. We certainly know that there is no safe heat energy that can be used near most nerves and so although some of them can be close to be safe, we certainly feel like by you doing it sharply we are giving a person the best chance of preserving those nerve fibers that are located in the neurovascular bundle. I think the other critical thing to mention there is that by so far I think during this procedure having minimal to no blood loss, one feels a little more comfortable having a little bit of bleeding around this area in order to preserve those nerves. Certainly I think if one had gotten to this point and had a large amount of blood loss; it might be a different story.

JOSEPH SMITH, M.D.

The rest of the so-called pedicle, that’s where the true blood supply to the prostate at the arteries enter in and we have got this dissected off pretty nicely so that anatomically we can tell exactly where we are and exactly what we need to clip. (We need one more clip right there Matt).

NARRATOR:

And this is really where the largest amount of blood supply comes into the prostate and once Dr. Smith is able to completely take this, it really cuts down markedly on any risk of bleeding. The other critical area that can be a risk for bleeding has already been ligated but not divided is the dorsal venous complex which we will see a little bit later in the procedure.

JOSEPH SMITH, M.D.

So now that we have got that divided and we’ve got the neurovascular bundle at least initially dissected off, we are going to be able to come right where we want to come which will be right next to the prostate where we are going to be able to see the prostate itself so that we are not going to run any risk of getting into it. (I want another clip on this here too Matt, yes that tissue right there, good). So we are going to work here to get the rest of this off.

NARRATOR:

Dr. Smith is actually making a plane right now between this critical neurovascular bundle which contains a plexus of nerves which send signals to the male penis to control erection and what is called the capsule of the prostate which we will she as a shiny layer to the left side of your screen and Dr. Smith can actually point that out right there, that’s the capsule of the prostate.

JOSEPH SMITH, M.D.
Yes that is the prostate right there. And after I feel very good with where we are, we can see this nice thin tissue that tells me I’m right in the plain, I’m clearly not in the prostate, we are not getting too close to the cancer, yet the nerve bundle is out here so that’s exactly where I want to be and I like the way that’s going.

NARRATOR:

I think it is also critical to realize that this capsule that we talk about is a very thin layer in essence containing the prostate but cancer can work its way out through this and so it’s important to be able to see it quite well and be sure that it has not been invaded or the cancer has not gotten extracapsular as we say.

This patient is a very healthy male in his 50’s who has good sexual and urinary function. He has a PSA lying at a range between 4 and 10 and on biopsy, had what we would consider a moderate Glisson which is a scoring system that we use to score the aggressive of cancers under the microscope. He has a moderate carcinoma of the prostate. Given all of these factors and given what we know about his PSA…

JOSEPH SMITH, M.D.

We are going to switch cameras now so it takes us just a minute to change over to a different camera angle. We have been looking with one that has a 30 degree down angle to it, so it will take us just a minute to do that and so you can move on to something else.

While we are doing that, why don’t we show the segment showing how we actually get the Robot into the position which was filmed earlier.

NARRATOR:

What you are seeing on your screen now is the DaVinci Robot docked. They are currently changing the camera system and one of the advantages of this system is that it actually places the surgeon in direct control of all of the arms of this Robot. In a sense, the idea of a Robot as most people think of it, at least for surgery not really true, this is more what I would term computer assisted surgery meaning that the surgeon is in absolute control of any movements of this device, in essence what you’ll see Dr. Smith doing with his hands is directly transferred to the arms of the Robot. Each little movement, each nuance of movement of his fingers is translated very precisely to these distal affecters or instruments that are inside the body. I think one of the greatest advantages of Robotics in terms of what we are seeing here at Vanderbilt and many are seeing across the Country is not only the vision but also the precision with which one can operate and one of the advantages that can be translated to this is the fact that by using computers actually trimmers and other movements can be dampened out so that very large sweeping movements of our hands or fingers can be translated into very small, precise movements and therefore one can do a precision operation at a level that in many ways is difficult to even do under a large microscope type operation.
JOSEPH SMITH, M.D.

Let me point something out which is kind of interesting in him and it’s a little bit of an anomaly, this man has what is called an accessory pudendal artery. This vessel right here which comes along the sidewall of the pelvis, this is muscular tissue is actually a fairly big arterial structure prior to us dissecting it off of the prostate, it lied immediately adjacent to it and you can see it heads down in this direction and pierces into what is called the genitourinary diaphragm which is this muscle. I don’t know exactly what number of people have those, its somewhere around 5 or 10% but it’s a good thing to recognize and to preserve that artery when somebody does have it, you see he does not have that on the other side so it’s a little bit of an anomaly when someone has that and we identified it in him and fortunately we were able to preserve it nicely.

So now we’ve really got the prostate pretty well mobilized off of other structures and it’s time to divide the urethra so at this end the urethra itself goes right through the center of the prostate and it of course attached to the bladder where we’ve separated it. Our job in a few minutes will be to put things back together but now we have to divide the prostate down at the apex so right in this area, this is also key because this is the most common place where so-called positive surgical margins occurs and by that we mean cancer growing up to the edge of where the surgeon takes out the specimen, so it’s crucial to make certain that this incision is in exactly the right place, far enough away from the prostate yet not too far because then that can damage adjacent structures. And then again of course this is an area that we said earlier where there can be considerable bleeding which could make it even more difficult if there were, but I think we are not going to have that.

NARRATOR:

And as our audience can see there is actually a suture there directly above where Dr. Smith is cutting. That is actually a ligation suture which has been placed around the dorsal vein which for many decades prior to really the 1970’s and 1980’s was the main reason that the prostate was no-mans-land for operating because it is a large complex of veins that can bleed quite profusely and so once management and the ability to ligate that and understand its anatomy grew, people were able to successfully remove the prostate surgically.

JOSEPH SMITH, M.D.

So now we’ve got a really good view of the apex of the prostate and the prostate is ending right here. The urethra is heading out there and we’ve really got very very little bleeding and we have cut down through here. We are going to come through the urethra and we are actually going to see the catheter that previously had entered all the way into the bladder. Another advantage of this Robotic approach again is the vision of the apex of the prostate which is what we are doing right now and right behind me is the catheter. There is that catheter which is inserted and we will take it our for right now. We will finish dividing this tissue.
NARRATOR:

And hopefully our viewers are seeing a schematic on the right screen showing actually the exact step that Dr. Smith is performing right now there the urethra is being divided and so now the prostate is completely free.

JOSEPH SMITH, M.D.

It is free and it looks good but we have got to get it out of there somehow too and so what we will do is temporarily put it in this bag. So this is our surgical specimen. There is a drawstring on that.

NARRATOR:

And right now we are approximately about an hour and 45 minutes to 2 hours into the operation. This is certainly a little bit slower pace than some of them simply because of our current broadcast but certainly not much. The average one of these takes between 2 and 3 hours which I think many of our views would be curious to know I think its just a little bit longer than open surgery at this point. However I think as with any techniques, early in peoples experience certainly longer times are part of this and our viewers need to realize that this is somewhere in the range of about the 270th Robotic prostatectomy performed here at Vanderbilt University Medical Center. Early in our experience we tried to create a scenario where we felt we would have the highest change of successful translation from our very good experience with open prostatectomy over to this time of surgery and so we are able to combine Dr. Smith’s experience with over 2000 open prostatectomy’s with my laparoscopic experience once we had acquired this Robotic technology and early on, we both worked together to develop the techniques and the skills that we needed to be able to rapidly translate this and overcome what is called the “learning curve” for any new type procedure.

JOSEPH SMITH, M.D.

Yes, it does take me longer to do a Robotic prostatectomy that it does an open prostatectomy, but we can do everything all together including placement of the ports and removal of the ports, generally around 3 hours now so the times are certainly fine, they certainly don’t affect patients at all at a time like that.

What we are doing now here is removing the lymph nodes and I’m not sure if everybody really removes the lymph nodes when they do this operation but I think they should and we do. Patients like to know what their lymph nodes show and we like to know what they show even though with the parameters that this man has, his chances of having cancer in the lymph nodes are really extremely low but it does not add a lot to the operation. I don’t find it to be particularly difficult to do this laparoscopically (let that go jut a minute Matt and let that cross back over). What you see here, this blue thing is the external iliac vein. That is a very large vein. The vena cava, which is the largest vein in the abdomen, divides
into the external iliac veins and each does down to the corresponding leg. Just beyond that to the side you can see this pulsation, I think you can see the boom-boom-boom pulsation, that’s the external iliac artery and the lymph nodes of most interest to us, because if any of them are going to be involved it’s going to be these, are the ones which lie immediately underneath this external iliac vein and immediately overlying a nerve which we will see here in a few minutes. We have actually already done the lymph node removal on the left side so we will just complete this here on the right.

NARRATOR:

One thing that I would like to point out to our audience is that they are welcome to send in email questions to us directly in the OR. That is available on your screen at the bottom utilizing several buttons that are located there.

One of the first questions we have received Dr. Smith is asking what percentage of patient’s suffer from incontinence after prostate surgery and is that incontinence permanent? And I’ll start to address that by saying that there is a small risk of severe incontinence after any type of prostate surgery. I think luckily that rate has dropped dramatically over the past years and I think that from my and your experience of Robotic prostatectomy, I would say that we feel at this point that we are equal if not slightly better at preserving continence, however again any procedure on the prostate has a small percentage chance of causing incontinence. I would say the rate of severe incontinence with any procedure at this point is round 2-3% but certainly many men experience some short-term stress urinary incontinence after these types of procedures as they learn the process of voiding again and all. We can talk a little bit more about the catheter and things like that in a few minutes. Dr. Smith, your comments.

JOSEPH SMITH, M.D.

Yes, the risk is low (clip that Matt) I wish it were zero and it’s not. One of the reasons that we pursue doing this robotically was to try and improve on continence rates. We were actually very happy with the results we got with open surgery. I think that they were comparable to the best series that have been reported but they still were not zero and we knew they would not be zero with the Robot either but actually I think it has been our observation, I am ready to say it I guess that the return of continence has been faster in the Robotic patients and I think the ultimate return of continence is a little bit higher so the risk of severe incontinence is really low.

Alright I have completed the lymph node removal, all we needed to do. I’ve shown that vein before and I mentioned that there is a nerve, here is the nerve right here this white structure that is called the obturator nerve which we have gotten skeletonized nicely. Below that are the obturator blood vessels and here is that accessory pudendal vessel that I showed before so that is actually a pretty thorough lymph node dissection and it has gotten the lymph nodes of most interest to us have been removed.

NARRATOR:
I think it is key for our audience to understand that nerve is actually a nerve that helped move the leg and is not one of the nerves that we talk about in prostate surgery. Dr. Smith can perhaps show us on the screen and a few seconds where the nerves that the plexus of nerves that actually controls erectile function in men run on both sides of the prostate, he has done a great job on this one of preserving those bundles as we call them.

JOSEPH SMITH, M.D.

Yes, I actually think it did go real well. They run right alongside the prostate and a difference is this, I can show you one large nerve right here and its easy for anybody to look and say that the nerve is intact, I did not cut it, but the problem is that the so-called neurovascular bundle is exactly that, it’s a bundle of very, very small nerves and small blood vessels so it is not a distinct nerve like that, it’s this bundle of tissue which runs right along here, you see a clip which we had placed to get some of the blood vessels as they pierce the prostate and it runs right alongside the urethra which is right here which is of course what we are going to sew back up here to the bladder to complete the operation.

So really one of the most difficult steps of the operation when you do this Robotically or laparoscopically is sewing the bladder neck back to the urethra and in particular with pure laparoscopy, many surgeons found that to be quite challenging, although there are some who are good enough at it that they do it quite well, but most find that very challenging and the Robot really makes that a lot easier and that is what you are about to see right now so we need to switch over our instruments (Matt let’s switch out now, needle holders).

NARRATOR:

Well I think that is another key comment by Dr. Smith is that there are various ways to accomplish this procedure. We talked a little bit earlier about open prostatectomy. There are several routes at the prostate. There is an older technique called “Peroneal prostatectomy” still done at many institutions for other reasons and then finally there is Robotic and non-Robotic or laparoscopic prostatectomy. I have performed both of these types of procedures, but the non-Robotic and the laparoscopic procedure and so I feel that I am pretty qualified to talk about the advantages and disadvantages of each. I think that as Dr. Smith said the Robot is a fantastic tool. What it really allows people to do is translate I think often times an extensive open experience with prostatectomy to performing laparoscopic surgery as some of these laparoscopic skills take a great deal of time and practice to master. It does not mean that it can’t be done but certainly I think it can be done much quicker with the Robotic technology. However, given that I do think there are certainly people out there who have mastered laparoscopic skills who can perform this type of procedure without a Robot, but I do think even for myself who has a great deal of laparoscopic experience with suturing and performing a lot of different complex kidney surgeries and things like that, the Robot does provide some distinct advantages for the prostate.
I think the one other thing that people should notice and I will point out is that Dr. Smith is in complete control of every single instrument that you see on your screen except for the small clip applier and the suction whenever it enters the field. He has actually got three surgical arms under his control, one of which can be placed a permanent retractor and then is controlled by clutch which he operates with his feet and then two arms are currently active at any time allowing him to perform these complex suturing maneuvers in all and you will see the wristed elements to these arms which allow 6 degrees of freedom and that is the thing that at least up until some very new and right now experimental tools have come out, has not been present with laparoscopy and so performing things like suturing and complex maneuvers with standard laparoscopic instruments takes a lot of practice and a lot of dedication.

JOSEPH SMITH, M.D.

I’ve got a couple of stitches here in the bladder neck and you can see that we have a couple of them in.

NARRATOR:

I think our viewers will notice also that we are using one suture that is basically two sutures that have been knotted together and then there are two needles, one needle on each end and this has been brought up through the posterior bladder neck and actually what we will do is what we call a “running suture” or contiguous suture on each side, bringing the bladder neck down to the urethra which you are about to see the catheter coming out of the urethra.

JOSEPH SMITH, M.D.

(I need more room on that left arm).

NARRATOR:

Dr. Smith will grasp the end of the catheter and actually show the underside of the urethral mucosa or lining of the urethra to himself so that he can place a very precise suture posteriorly and this will serve as an anchor point. There will be one done with each of these two needles and then the bladder will be brought down to this.

JOSEPH SMITH, M.D.

(Take the pressure off just a minute, it looks like you are pushing this a little bit too far from behind there, it’s actually making it harder).

NARRATOR:
Actually, one of our assistants is actually pushing in on what’s called the perineum or the area under the scrotum. It actually pushes that mucosa out and allows us to get a better biter or suture bite of it with that needle. And so there is one needle that has been placed.

JOSEPH SMITH, M.D.

Whenever you sew something up in the urinary tract, you have to use an absorbable suture and you are going to see in a minute how we have to have the bladder neck slide back down to the urethra so we want kind of a slippery type of suture too, which is all well and good. It also makes it very wiry so this is a little bit of a hard suture to work with during this part of it. It is very easy to get it tangled up. Once we get these in, the tangling part is less of an issue but during this part of the operation, I don’t like all of the tangles that can happen.

NARRATOR:

And this suture is absorbable, meaning that it will hang around until the body heals itself together but eventually disappear and that’s critical for the urinary tract. One of our viewers asked about the clips that we were using, if those are absorbable or permanent. The type of clip that we are using is a locking clip that actually is non-absorbable, meaning it stays in the body. However it’s inert, it does not cause any problems and these are only used in critical portions such as blood vessels and we feel like clips are a very common part of surgery at this point and at least in our experience we feel a lot safer to use around vital structures like nerves than things like electrocautery or various specialized surgical tools that can be used to burn or seal vessels.

JOSEPH SMITH, M.D.

You saw me kind of make a little switch there from that one left sided arm to the other one and I can do that by just hitting a pedal. Now you can see the slides that occur, I have got to pull that bladder neck all the way back down to the urethra which was where the prostate use to be so there is a bit of a gap there.

NARRATOR:

I think one thing Dr. Smith could tell us and I think many of our viewers may or may not know is that this to me I think was one of the things that struck me as being a real advantage of laparoscopic and Robotic surgery is the ability to do this anastomosis under direct vision. In standard open surgery, these sutures are placed and then tied and a series of interrupted sutures is performed. Here, we are actually able to put it together under direct stitch-by-stitch vision which I think while certainly the other methods have been successful in open surgery, certainly as Surgeon, I enjoy the idea of being able to see each suture go in very precisely.

JOSEPH SMITH, M.D.
Yes, I guess so. We certainly get a very good anastomosis doing it robotically. Again I have done it open over 2000 times and we don’t have a whole lot of trouble getting the anastomosis done that way either but then its interrupted sutures and there are some potential advantages to doing it running.

NARRATOR:

One of the questions that has come up by one of our viewers is the question of some of the advantages of robotic or laparoscopic prostatectomy, whether they are true or not and one of the issues has been the issue of pain after this operation, and I think that is an area has engendered a little bit of controversy. I think for many, laparoscopic or minimally invasive surgery is one of the major pushes behind them has been reduction of pain or postoperative hospitalization or convalescence. I think for prostatectomy, what we at Vanderbilt would say after researching this is that we do not think that this will provide, or we have shown that this really does not provide a great advantage in terms of pain over open prostatectomy, mainly because the open prostatectomy incision is a lower midline incision, it does not hurt a great deal. There is a slight advantage on the first day of the surgery, however it really equals out very quickly. When we say that we don’t mean to sound that robotics is an advantage, we just don’t feel the pain issue is probably the greatest advantage of it. We really feel that the advantages lie elsewhere. They lie on those areas of preventing side effects such as incontinence and impotence and things like postoperative pain and the length that somebody is hospitalized are due to a variety of factors. Dr. Smith do you have any comments on that?

JOSEPH SMITH, M.D.

Well you know the fact is that the postoperative care pathway that we use which is really our menu for how we care for patients is identical whether we do this operation laparoscopically and with robotic assistance or whether we do it open, are target is to let people go home the first postoperative day and we reached that target over 90% of the time and patients safely go home and happily go home the first day after surgery whether we do it with an incision or whether we do it robotically. Fortunately, patients in both groups don’t have a lot of pain afterwards so as you were just saying, the reason we pursue doing this laparoscopically and robotically was not for those areas. It was not so a patient could go home more quickly, it was not so the patient could have less pain, it was for what I consider to be more important areas and that is adequate tumor control and removing all of the cancer while avoiding some of the side effects of surgery and how much better the Robot is than open surgery on those measures I think is actually still a matter of debate, but I am actually quite comfortable telling my patients that I can given them at least a good a result doing it robotically and deep in my heart I think it is better, but we are still generating the data. We are doing a very careful prospective, that means going into the future, comparative study to look at all of the outcome measures so that we will be able to present to people and tell them how much better it is an alternative methods and all of the data are not yet available because some of them have to be collected over a long period of time and may be even up to a year after surgery but at least peaking at what we have, it’s at least as good and I think better.
Some of the questions that have been asked, is there a difference in outcomes associated with doing this running suture versus interrupted suture and I don’t think that as Dr. Smith previously said, I don’t think that there is really much of a difference in terms of the fact that we had good results with the open surgery using interrupted sutures. Early in our experience with robotics from my robots, I used interrupted sutures. However I recently switched over to this running type method, but I do think it does provide a very nice anastomosis. It is very quick in terms of bring things together. Dr. Smith while you continue this part of the anastomosis, I am actually going to see if we can queue up the tape to show people sort of the introductory part of this, how we get the robot actually positioned into the body and let them view this as you bring the sutures around.

JOSEPH SMITH, M.D.

Alright.

NARRATOR:

What we see him doing now is bringing the sutures around each side, he has sort of reach the 9 o’clock and the 3 o’clock position and you will notice there he is hold it with his left external arm which he can then clutch foot and reposition. And actually at this point he will in all likelihood go ahead and place actually what we call a “security” or safety suture. Simply to place one more extra interrupted suture in case anything would happen to any of these running sutures, it’s just a little extra insurance policy that we like.

JOSEPH SMITH, M.D.

Yes, that suture that we have used here should not break and rarely breaks but if it did break, they may do alright, it take them a lot longer to heal so I just feel better putting in a couple of interrupted stitches like this just to give us an even more secure situation.

NARRATOR:

Dr. Smith we are going to go over to the introductory part showing the earlier filming of the robotic, actually how we get into the abdomen. This shows on the field early on there is a small incision made, usually right below the umbilicus or belly button. The abdominal cavity is entered, actually in this case the incision is going to be slightly above because this patient is quite thin, there are several sutures placed in and actually soon a small trochar or port is placed into this whole and what this port allows us to do is actually introduce gas into the abdomen. This is CO2 gas, it’s inert. It is something that we breathe off out of our lungs everyday. It is non-toxic and so it allows us to distend up the abdomen with this gas and be able to look around. This is a laparoscopic port, a standard port used for any type of laparoscopic procedure. So this abdomen will be insufflated and following this, the patient is actually placed in a position that is a little bit
different than a standard prostatectomy, he is actually going to be placed sloping with his head down and this helps retract the bowel up out of the pelvis so that it does not get in our way during the procedure. Additional Trochars are placed in a standard pattern around this, right after we put this camera in and look around.

This is one of the other interesting things about the robot is actually the camera system is a little bit different than a laparoscopic camera system in that there are actually two cameras and they have a computerized way of giving one in essence a little bit of 3-dimensional vision which is lacking with standard laparoscopic surgery and so that is why it is a little more complicated hooking camera set up than a standard laparoscopy. These additional ports are placed in a fan-type pattern. We actually use a five-port technique. Four of those ports are under the control of the robotic arms and actually under Dr. Smith’s control and then one port to the patients far right is actually for the assistant and one our viewers asked whether the assistant is actually controlling the Trochar with his hand, and he is. There is an assistant at the table at all points, there are actually several personnel at the table helping to control things and perform tasks such as switching out instruments or cleaning off the camera if that is ever needed. This actually shows the robotic system being wheeled into place. There are two major parts of the robot. This is the arm cart or the robotic surgical arms. These are brought in and actually linked to these metallic ports or Trochars and then later in the procedure instruments are advanced through these and placed under control of each of these arms which Dr. Smith again has direct control of these. They are not actually being run by the robot as much as controlled by Dr. Smith’s fingers.

Let’s go back live to the surgery now.

JOSEPH SMITH, M.D.

Yes, we are finishing up the anastomosis and again we put our interrupted stitches in there for some security and now he have got to finish this part up. I don’t know whether the running suture offers any distinct advantage over the interrupted stitches like we usually use for open surgery. It certainly gives a nice secure water-tight anastomosis but in the end whether people would do better with this running stitch versus the interrupted I don’t know if it definitely makes a difference but it is a lot easier when are doing it robotically and not to have to stop and tight all of those knots.

NARRATOR:

Another question we have by one of our audience members I thought was a very interesting question was he asked if the robot would keep the surgeon from dividing or damaging the nerves and I think the answer to that is no. This is still a surgical procedure. Again as I said earlier its not really the robot operating, the robot is simply a conduit for the surgeons movements, knowledge and skills to be translated into these instruments and so as would any operation, there is no machine that can do it better or at this point can do it automatically and certainly I think the skill and experience of the surgeon are key factors in performing these types of procedures just as they are with open surgery.
JOSEPH SMITH, M.D.

We might say, as I am just finishing up these last few stitches here and before we move on to the next part, we might say a little bit about post-operative care and how we do things because the robot obviously is just a tool. The operation is the same operation regardless of how we do it, just different methods to accomplish the same goal but the outcome for people and how they do depends upon a number of other factors and part of it is the postoperative care and we are really fortunate to have such a great team really all throughout from preoperative and even postoperative but we feel like preoperative instructions that come from our nurses and our personnel in the clinic, the intraoperative team that we have introduced here today and are postoperative care which is our nurse practitioners and others in the Hospital are absolutely essential to what outcomes we get and we have a program where we always followup with patients and talk to them right after they are discharged. If we are going to send them home on the first postoperative day, we have proven that is very safe to do so and actually patients like that but it also means that it puts a burden on us to be certain that they are properly instructed and that we are providing the proper followup for them and that’s where all of the people who work as part of our team are so essential.

NARRATOR:

I think that is a great point, I came here from several other institutions and I think Vanderbilt University Medical Center has a very admirable history in developing pathways for prostatectomy and helping really ensure I think great management of the patients. One of our goals is not only to get people home as soon as they are ready but really to increase the quality of their experience and I think that is essential. We do not want to send people out of the hospital have them not be well taught and be comfortable with the experience and yet we are able to do that in more than 90-95% of the patients, either with open surgery or with the robotic surgery and I think that is a real tribute to the nurses and the other practitioners and Nurse practitioners and that work with us.

JOSEPH SMITH, M.D.

Well, there are a bunch of them and I hate mention names because of leaving one out but I will go ahead and say a few key ones though because Sonja and Ginger in our pre, do such a great job of instructing people before surgery and Roxy Baumgardner and Lori Anderson do such a great job for us in the hospital and they know we appreciate it be even more important I think the patient’s really appreciate it.

NARRATOR:

We have several other questions that I will go ahead and address and Dr. Smith you can give your opinion on any of these if you want. Several people have asked one question, can a robotically assisted prostatectomy be used on a large 100 gram prostate? I think the answer to that is yes, we have operating on some people with very large prostates with
the robotic system. We have also operated on some very patients here in Tennessee, we have some large patients and I have performed this procedure on a patient over 350 pounds and it is true that actually everyone is the same on the inside, it’s just a little but thicker getting there, but I do think that this is a procedure, but again it’s important to realize that I would not have tried that as one of my earliest procedures doing this, and certainly a lot of experience with laparoscopic surgery and with robotic surgery helped me get through that operation. I know Dr. Smith has also performed this procedure on obese patients as well as very thin patients like our patient today.

JOSEPH SMITH, M.D.

Yes, the prostate size makes a little bit of a difference, just like it does with an open operation. I would rather do a small prostate than a big prostate in general but it does not make a do huge difference and actually even earlier on in our experience we kind of happened upon a prostate we did not realize how bit it as but the fact is, I have done one that was 190 grams robotically and we have pretty routinely done 90-100 gram ones so I don’t think the size makes much difference.

NARRATOR:

One question that I have seen several times from several different people on the internet is concerning sort of financial and insurance issues and one thing I will just add in here, I think that is beyond the discussion today but this type of procedure in deed is covered by many insurances although not all and certainly I think it’s one of the areas that just like the outcomes and the other data that our group is studying and other people. We are very interested in really studying the financial side and impact of this type of technology as I probably did not mention earlier, we had a slide but I did not have time to get to it. The DaVinci is over a million dollars and certainly the procedure adds some cost and yet we feel like the benefits at this point are worth us employing this type of technology.

JOSEPH SMITH, M.D.

The finances are all very important for hospitals that have to decide to whether to spend this kind of money and how to make it pay off for them but for patients, it has not become much of an issue and the reason is this; this is indeed a Medicare-approved procedure. This is not an experimental operation in the eyes of Medicare and Medicare is the one that usually sets the tone for private insurance companies and so the fact is actually virtually all private insurance companies that we have encountered do cover this and if they have any hesitation, we just simply point out to them that there is a Medicare code for this operation, there is a Medicare fee for it and they come around, most of them sometimes they are just not as familiar with the procedure itself but it does not cost them anymore than if we do it with an open approach, neither the patient nor the insurance. It may cost the hospital more but that is the hospital’s problem.

NARRATOR:
One other question I will add and then we will start to wind things done somewhat.

JOSEPH SMITH, M.D.

(You can insert a catheter now). We have completed the anastomosis; it actually looks quite good to me. I think we have got it nicely back together again. So now we are going to insert a catheter back through and into the bladder, then we are going to fill the bladder and make sure it does not leak anywhere. Go ahead Duke.

NARRATOR:

We will just watch this portion for now. Here comes the catheter into the bladder, and in a few seconds actually a balloon at the end of the catheter will be inflated with some sterile water.

JOSEPH SMITH, M.D.

So this is bladder right here. We have got some fat on top of it which is typical.

NARRATOR:

Dr. Smith I would estimate the blood loss of this procedure probably at being 100-150 cc which is probably about 1/3 of a Coke can which is quite a bit less than the average open prostatectomy in many surgeons hands and so I think we can get a real appreciation for how not necessarily bloodless but very minimal.

JOSEPH SMITH, M.D.

(Fill the bladder up again). Yes, I think we have lost 100 cc or so. It is inconsequential he will have almost normal blood count tomorrow an we are actually looking to see how much that affects recovery too in people. Now you see the bladder being filled and it looks very good down there, I do not see any leakage at all from where we’ve got it sewn back together. (Okay you can empty it now). But despite the fact that looks so good, one thing we will do also is put a drain into the pelvis and that is in case there is some urine that leaks out in between the stitches, we get evacuated to the outside. So we put this drain in. The drain will probably just stay overnight. We most likely will remove this tomorrow before he goes home.

Again if you look up here you can see the this is the bowel, there is the sigmoid colon and we are down to the pelvis, and here comes our drain which I will be able to grab and stick right down here so that if there is any leakage, we will get it evacuated but this will probably be out tomorrow. (Okay you can pull that Trochar out). So actually we are removing from the abdomen the Trochar that was in. You can see that, there is a little hole right there were our little port we used to go in and the drain goes through it. Now I will come over here and you remember the prostate, we don’t want to forget it, that is
what we did the operation for, and it’s in the bag which is attached to this string. So now I will come in a grasp the string. Yes, why don’t you show that.

NARRATOR:

I am going to take us over to a previously filmed extraction just so that we can finish up here and show the final product.

JOSEPH SMITH, M.D.

We are really down here now and we just have to get the prostate out. We have already got that filmed on a prior one so why don’t you show that.

NARRATOR:

What we see here is actually that small bag has actually been brought up now through that initial incision up by the umbilicus or belly button and depending on the size of the prostate, sometimes that incision has to be enlarged a slight amount but typically not very much. And there the prostate comes out in the bag. The lymph nodes have already previously been removed and here Dr. Smith is actually going to show us the prostate. This is from a previously performed procedure.

JOSEPH SMITH, M.D.

(Prostate sits like that. See, the Vas Deferens and the seminal vesicles and the urethra goes right through the middle of the prostate).

NARRATOR:

Right, this shows the prostate and actually he has got the forcep right now through the urethra as it runs through the prostate and he is just inspecting here to make sure that he has removed a good specimen, that he has a nice intact prostatic capsule and as much tissue around the prostate as possible within the limits of attempting to spare those nerves and those neurovascular bundles that we talked about beforehand. With that we will go back to a shot of externally as the robot is being de-docked or removed from the patient.

JOSEPH SMITH, M.D.

Are you back in here Duke, in the operating room?

NARRATOR:

Yes, we are all in the external camera.
JOSEPH SMITH, M.D.

So we are done with the robot console and they are just taking things down so I think we are about done and I think this went really well and I think this man is going do nicely.

NARRATOR:

Several other quick comments from outside, one that I will bring to your Dr. Smith is do you generally recommend the robot for most of your patients at this point or are you still performing a large number of open procedures as well?

JOSEPH SMITH, M.D.

You know I tell people I think we can give them a good outcome either way. I tell them that I think we can give them a least a good a result robotically as we can with an open operation on all measures. How much better it is on some of these areas, again I think is still somewhat a matter of debate but in telling someone that is at least as good as an open operation and an open operation that we have done so often, I will have to say the majority of people nowadays are choosing to have it done robotically but we still do have some who want to do it open, they do not want to do the newer techniques and again I think we can given them a good outcome either way.

So what they are doing right now, we have to get this robot un-docked, rolled back and we have five little holes in his abdomen, you saw the port come out and leave one of them. The other one will be made larger like you saw on the little video we showed where we extract the prostate and we have to sew those up, especially the one that we make larger, so he will have a little bit of discomfort but probably will not require any narcotics postoperatively. We give people Toradol which is a nonsteroidal antiinflammatory drug and for many patients that is really all of the analgesic, all of the pain relief that they need after surgery.

NARRATOR:

Yes, I think at this point we have a well established pathway that really I think benefits these patients. We do a great job of managing their pain and discomfort postoperatively, what little they seemingly do have. Interestingly enough, our recent study has we discussed showed that pain is really minimal with both these groups of patient’s after the operation. However as Dr. Smith eluded to, and I think I can reinforce, we really feel strongly that the benefits of using this technology and performing a robotically assisted laparoscopic prostatectomy, are really going to lie in other areas. Areas such as preserving potency, providing better continence to our patient’s and I think equalling in terms of cancer control the excellent results that we had over the years with open prostatectomy. As Dr. Smith alluded to, we have on-going I think one of the strongest studies going on the Country, examining these factors. Dr. Smith and I feel very strongly that only through doing this kind of in depth research can we really provide for our
patients and for their families the kind of information that will help them choose the right pathway when they are looking in the management of prostate cancer.

As we close, the incisions I will go ahead and start closing our broadcast. I would like to thank all of our viewers out there. I would like to thank Dr. Smith and the operative team as well as our on-site team for the broadcast. And certainly I think it was an excellent procedure and I hope people out there watching enjoyed it.

Thank you very much.

JOSEPH SMITH, M.D.: Thank you.