

The American Chronic Pain Association

Understanding Medical Devices for Pain Management

INTRODUCTION

Narrator (VO):

If chronic pain is part of your life, you face many challenges. It's important that you take an active role in your health care. When you do, you are meeting some of those challenges head-on and reclaiming some of the control that pain can take away from you.

One challenge is understanding the many treatment options that may be available to you. Some are familiar: medications, physical therapy, massage, counseling, and relaxation, for example.

But you may be less familiar with implantable devices such as medication pumps and nerve stimulators. If your health care provider has suggested one of these options, you probably have lots of questions. Your own provider is the best source for answers that apply in your unique situation.

But here is some basic information to get you started. You might want to note any questions you have for your provider as you watch. At the end of each section, there also are some questions you may want to ask.

Make sure you learn all about any treatment option before making the decision to try it. Education and understanding can help you make good choices and feel more in control.

Just as important, knowing more can help you have more realistic expectations of how the device can help you as part of your over all pain management strategy. The greater your understanding, the better your chance of success and satisfaction with your decision.

INTRATHECAL MEDICATION PUMPS

Narrator (VO):

You may be accustomed to taking medications to help you manage your pain. Intrathecal pumps are simply a delivery system---a way to provide regular, evenly timed doses of your medication to your body.

My pain was chronic from a serious accident and it went on probably for a period of a year before I started to really go downhill fast. At which time I was related to different doctors, tried different doctors to reduce the pain, ___ therapy, physical therapy, medications, and that type of deal and nothing seemed to work.

Ah, I went to another doctor and he suggested a pump implant and I said okay and he told me what that was all involved in.

I wanted to see one actually. So they got one and showed me exactly what it is, how it worked, where the ports were, where the catheter is, how it's implanted, how it's refilled, how it's alarm.

HOW DO THEY WORK?

Narrator (VO):

The pump has two main parts.

About the pump

The parts of a pump for intrathecal delivery systems for medications include the pump itself and a very, very thin catheter, meaning a hollow tube, that is inserted into the spine through which the medication flows through the pump.

One of the common questions that you get is: How big is the intrathecal pump? And you can think of it that it fits in the palm of your hand.

It's about the size of a hockey puck. So imagine a hockey puck underneath an inch maybe a-, I think it's an inch, underneath you're skin...

Basically you can think of it as a container which holds the drug and that is the drug which is then pushed through the catheter to your spinal canal.

Well the programmer for the pump itself is external. In other words a patient would go to see their physician or their implanter and they would place a programmer overtop of the pump and they could change the frequency of the medication in regards to either a continuous infusion, meaning that it's going the same rate 24 hours a day every single hour, or a bolus, which essentially means a booster that the patient may get over several minutes.

One of the nice things about intrathecal treatment is that you can adjust the dose. And so, there is a way that we can communicate, through your skin, with a programmer, basically you can think of it as a radio, and that we communicate with the pump and we're able to adjust the settings, and by adjusting the settings we can determine how much drug you get.

What medications are used?

The FDA approved medications are baclofen, which is typically used for **students** who have severe spasticity or another term might be cramps. The other two medications are called

Preolp which is an extract of sea snail venom and is typically used for patients who have nerve type pain. And the third FDA approved medication is morphine.

The— it's important to remember when you have an intrathecal device that you are receiving, in many cases, a very strong medication, and that's an opioid. Opioids, whether they are taken by mouth or whether they are delivered by pump have side effects and concerns that you always have to be worried about.

Narrator (VO):

Here are some questions you may want to ask.

- What device do you plan to implant? May I see one?
- What medication will it contain?

WHAT ARE THE BENEFITS OF THIS THERAPY?

Narrator (VO):

An intrathecal pump has a number of benefits, among them fewer side effects and the ability to use smaller doses of medications.

Fewer side effects

The advantages to a pump are several 1) it does not cause as much GI side effects as medications that are given by mouth, because it bypasses the GI track, if you will.

And so, it's very close to the spinal canal— within the spinal canal were you're getting the medication so you can use a smaller level and this may lead to lower side effects.

Lower doses of medication

The other advantage is that medication delivered directly into the cerebral spinal fluid from a pump is approximately, if you're looking at morphine for instance, 300 times more potent than if you were taking it by mouth

So you can use less medication to get the same effect

Narrator (VO):

There also may be economic benefits.

Cost benefits

Both of these devices are expensive. But when you look— up front you have a very high cost for the equipment and also for the surgery, but when you look down the road, many of these people have lower costs, because they are using less resources.

The pump itself helps with not only decreasing the side effects of taking medications via another route, it can also help to keep patients out of the emergency department, keep them from frequent office visits, except to get the pump refilled and hopefully keep them out of hospitalizations that may happen secondary to pain.

So, it depends at how you look at the cost of these devices.

Narrator (VO):

Here are some questions you may want to ask your doctor.

- Why do you think this is a good option for me?
- What benefits can I expect compared to other therapies?

WHAT ARE THE RISKS OF THIS THERAPY?

Narrator (VO):

As with any surgical procedure, there are risks involved. Some relate to the surgery.

Surgical complications

Anytime you break the skin with a needle or a knife we always tell patients that there are risks, there are complications, there are side effects.

When you have a permanent implant with an intrathecal device, one of the surgical risks that we always worry about is bleeding, but once you've healed, that risk is substantially decreased.

Bleeding would be a significantly uncommon, I want to say rare, but I would say uncommon event and we always make sure that patients are not on any anticoagulants or drugs that would cause bleeding.– prevent them from clotting, if you will. Infection is a real possibility but we place these things– we implant these things in an operating room in an extremely sterile environment or if you'd like to think of an operating room as the most sterile environment you can get.

And if these devices become infected they often have to be removed. And that has to be taken very seriously.

Because we're actually going into the intrathecal space, meaning the sack that holds the spinal fluid, there can be something that is called a post dural puncture headache.

It's not life threatening. It can be prepared surgically or by doing something called a blood patch.

There is also the risk in people who are getting intrathecal pumps of getting a small, what we call, a granuloma which is the growth at the tip of the catheter of a pump. And that is something that we have to monitor people for that have these devices for a period of time.

Narrator (VO):

Other risks relate to the medications being used.

Medication risks

Opioids, whether they are taken by mouth or whether they are delivered by pump have side effects and concerns that you always have to be worried about.

One of the side effects that we worry about is that we want to make sure that you continue to have good breathing and that you have no decreases in your breathing rate. And so, we watch for that in the holding area.

In men we can see urinary retention, we always have to make sure that that resolves prior to doing an implant when we do the trial.

One of the downfalls of having a pump is that it affects your effects your testosterone levels because of being on an opiate that's where the first thing it affects. My sex and my attitude was just getting to a point where I didn't feel like doing anything. I got lazy.

And in about six months I had my blood work redone and my testosterone levels were right back where they were. So that's one of the things you have to do for the remaining time that you have the pump because it does work on certain things in your body.

Narrator (VO):

Some risks involve the device itself. It's important to stay alert to problems, especially those that can cause an overdose of your medication.

Device problems

With any implantable device, well, one thing that you worry about is how well is the system going to function over the long term. In many individuals these systems function very well, but there also can be complications

Movement of the catheter inside of the cerebro spinal fluid is a possibility and that should be suspected if the patient has significantly increasing pain in spite of the fact that the doses are escalated, the patient has an abstinence syndrome, meaning that the medication is not getting into the cerebro spinal fluid. There are several possibilities for that.

1) the pump itself has failed, which is an extremely uncommon event, but it can happen. 2) there is a disconnect from the catheter at the pump site. 3) a break of the catheter between the pump and the cerebro spinal fluid or the catheter itself is sometime completely outside of the cerebro spinal fluid. It does happen but it is extremely uncommon.

But, if for some reason you have difficulty with your pump or difficulty with catheter and the drug is not getting infused properly, it's possible that you could have either an overdose or an under-dose, and an under-dose could lead to signs of withdrawal. If you're starting to get signs of withdrawal, it's important to speak to your physician to seek help.

But what we do typically do is 1) interrogate the pump to make sure that the pump is in fact working. We evacuate the pump to make sure that we're getting the medication that we expect to get, and the little computer that we have that we place over the pump will tell us that.

Then we do something called a dye test. We place radiopaque dye, meaning a-a solution that we can see under x-ray guidance. We inject it into the pump and we track it through the pump into the cerebro spinal fluid. If the dye is not delivered directly into the cerebro spinal fluid there is a disconnect somewhere.

So there are complications that kind of go with the equipment and we have to watch for those and monitor for those.

First thing to do is to go back to your physician. Your physician is the best person to determine what if any problem exists.

Narrator (VO):

Here are some questions you may want to ask.

- Do I have any conditions that might complicate the surgery?
- What symptoms should I watch out for that could indicate a problem?
- What should I do if I suspect a problem?

Reasonable Goals

Less pain, more function

Narrator (VO):

A pump is not a cure-all. It's important that you have reasonable goals when you're considering an implantable device.

One of the questions that people often ask about implantable devices are 'Will these rid me of all of my pain?'. And I think that the reality is, as with many forms of pain treatment and management, is that these devices will not reduce all of your pain, but that they will help a substantial amount and help you function better.

The pump may not result in 100% pain relief. So there have to be some expectations that are realistic on the part of the patient and we tell the patient that. In pain medicine in general the

gold standard, if you will, or the standard of care target that we look for to relieve pain is 50% relief.

Well, the device is not a cure. The device just adjusts the pain level.

I always tell my patients that are goals to include adequate pain relief but if we're going to give them adequate pain relief we'd like to see increased function, minimal side effects, and improved psychosocial functioning.

I would encourage people to focus on their function and where or not these treatments and other interventions that they're doing help them live more full lives: focusing on that aspect of the outcome versus the pain intensity reduction.

I think the importance with many forms of pain treatments are really involving yourself in a full, what we call, multimodal treatment plan. And what that really means is using all aspects of pain management. So, even if you get a spinal cord stimulator or an intrathecal pump it's still important that we help you with other forms of pain control.

I go to therapy three days a week, Monday, Wednesday, and Friday. And my work out is about two hours which keeps you on your toes, keeps you stretched out. Ah, it doesn't let you get lazy and other than that everything else just falls in place. When you feel good you want to do good things.

Narrator (VO):

Here are some questions you may want to ask.

- How much pain reduction can I expect?
- What other pain management techniques can I use to get the most from my pump?

WHO IS A GOOD CANDIDATE FOR A PUMP?

Narrator (VO):

Pumps are useful only in certain situations.

One of the first questions that we need to ask is do you have a condition that will respond well to intrathecal treatment? This is not for every pain state but for specific issues.

When we determine or try to determine who or who is not a good pump candidate, one, we look at the diagnosis. There has to be a firm diagnosis, what I like to call a hook to hang my hat on. Meaning that I can—I know exactly why the patient is having pain but nothing else can be done about it short of medications.

When you're contemplating intrathecal treatment, the first things to ask your self is 1) have you really tried all other reasonable options to treat your pain: more conservative options? And you want to make sure that you've answered that question. The second thing is that you want

to make sure that you don't have any –umm– process that would not make it not possible to have an intrathecal device.

When it comes to cancer pain, I think that everyone, at least intuitively would agree that we would go all out to control cancer pain.

In cancer pain patients we're not only looking for pain relief but if we give them pain relief we allow them to increase their function and then it becomes quality of life. We've placed intrathecal pumps in cancer pain patients and we've been able to cut down on significant side effects, increased their function, and they're able to interact with their family members.

WHO IS *NOT* A GOOD CANDIDATE FOR A PUMP?

Narrator (VO):

Pumps are not the answer for everyone.

There are certain individuals where intrathecal treatment may not be the best form of treatment for them. And the first thing is again is have you tried other treatment options that may be more conservative.

If we're going to talk about a diagnosis that would indicate a poor outcome from a pump, I would say fibromyalgia. Now, there are probably physicians who would argue with me in that regard and that's where the practice of medicine comes in.

If you have a bleeding issue it may be not in your best interest to have an intrathecal device or if you have a high rate of getting infections this may not be the best device for you.

Von Willebrand syndrome or they're on an anticoagulant like Coumadin, Warfarin, or Plavix for instance or one of those medications. Again, it does increase the risk of bleeding. We typically stop those medications while we're doing the trial and then shortly around the implant. But that doesn't necessarily preclude them from getting the system.

If you have any metal allergies or you have specific allergies that we're worried about, we should probably first– I would recommend that we first check to make sure that you aren't allergic to anything in the system.

Patients who have an immunosuppression going on for any reason, cancer patients or chemotherapy. It doesn't necessarily preclude them from getting an intrathecal delivery system however you need to make sure that they –uh– get clearance from their physician who is treating them in that regard.

There are certain individuals that may have certain psychological conditions that need to be better treated before we consider intrathecal treatment. For example, you may have high

levels of anxiety or high levels of depression. It's important that we help you with those conditions before we consider progressing forward to implantation.

Pumps and Those With Substance Abuse Issues

Narrator (VO):

If you have had a problem with substance abuse you and your health care provider need to discuss the situation openly.

One of the questions that we often get asked is would we consider this treatment for someone who has a drug abuse problem or someone that's previously had an addiction to opioid pain medications. There's no exact answer to that, but I will tell you that if you have had a previous addiction or you continue to abuse medications, until you have that under control or until you have the appropriately treated I would not even consider an intrathecal device.

A patient who has a chronic pain syndrome that again, I can hang my hat on a hook, I know they have a real pain problem, just because they have an abuse problem or they have an addiction problem in the past, that doesn't preclude them from deserving pain relief.

Narrator (VO):

Here are some questions you may want to ask.

- Why am I a good candidate for this device?
- Do I have any risk factors that could cause problems?

WHAT IS THE PROCEDURE FOR TRYING A PUMP?

Narrator (VO):

If you want to try a pump, you'll take part in a careful process.

Preliminary history and testing

The history and physical is nothing more that we wouldn't do for any other procedure that we'd do. It's a routine physical. We listen to their lungs, heart. We look at their medication list. We make sure that they get their medications while they're in for the trial. But, it's no different from a routine physical exam and the routine testing that we would do for any procedure.

We may have you get some blood work; we may have you get some films so that we can look closer at your spine.

We want to be aware of any anticoagulants or medications that they are taking to keep them from clotting and hold those during the course of the trial. If they have sleep apnea that's another concern altogether because of the possibility of respiratory depression.

Psychological screening

Narrator (VO):

Psychological screening is a normal part of the process and can help avoid problems later in the process.

Well, we look at an intrathecal device, a pump if you will or any implanted device in that regard that is going to be placed for pain control. The psychological screen is very important because we certainly know that any psychological overlay if you will or problem that is uncontrolled will preclude adequate pain relief, no matter what we do.

It's for many people, this of when they're asked to see a psychologist as part of an evaluation for a stimulator or a pump, it often is the first time that they might have seen a psychologist and they might be a little afraid. I think that a lot of people worry that when they're told to see a psychologist that someone is thinking that their pain isn't real or that they're faking it or that they are exaggerating it. And nothing really could be further from the truth.

Well, what we are looking for is what...The information that we provide back to your surgeon or physician is put into the larger whole and really they take our information and put it amongst all of the information that they are getting. And what they're really looking for are things that would adversely impact their surgery or their recovery.

Depression is one of the things that we certainly worry about.

If the psychologist deems that the depression is too great at this time, to place the intrathecal pump, the psychologist typically, at least in our practice modality would say we will treat the depression, bring it under better control and then move forward with the pump.

Besides the depression, we look at any significant component of anxiety. And, if the patient is anxious 1) about the procedure or 2) about their life situation or any number of things going on in their life. Then again the anxiety has to be brought under control either with medication management or with a psychological evaluation such as imagery, biofeedback, a collate of skills, if you will.

Well, we usually get information from a variety of sources one is that we do review the chart from your doctor. So, we'll be looking at what kind of treatments have been tried, what the effectiveness of those treatments has been, so we conduct a trough chart review. We also may ask you to fill out a series of forms and questionnaires.

Those really help us get a fuller picture of you and what we often are interested in is really understanding you as a whole person and how this prevention or treatment is going to help fit into you as a whole person and help improve your life.

Then we also want to sit down and talk with you. We want to find out about you. We want to understand how the pain came into your life, how the pain has impacted your life, what kind of things have you tried, how do you currently cope with the pain. Also, what are your expectations for this procedure, having the stimulator or the pump, and then what are your main goals? And again, we try to focus more on the functional goals rather than just, 'I want my pain to be zero'.

I usually at the end of each session I will review with the person what I will be talking about with their doctor or with their healthcare team.

The benefits to the consumer is really the same as the benefit to the physician and the healthcare team. It's around making sure that we get you in the best possible position before you have one of these surgeries.

The Trial

Narrator (VO):

Before moving forward, you'll have the opportunity to test the device under careful supervision.

One of the really nice advantages with both spinal cord stimulation and intrathecal treatment is that we are able to offer you a trial stage and the trial stage helps us determine and you determine whether this therapy may work for you. The trial was done and it was a four day trial. They insert a catheter around the spine into the damaged part of the back and had a drip of morphine going through the tube into the catheter. We always do a trial before we do an implant and I-I like in the trial, with my patients so that they can understand where we're going with the trial. You wouldn't buy a car without taking the car out for a test drive. Nobody buys a car the minute that they walk—I hope not—buys a car the minute that they walk onto a lot. This is the ability of the patient to take the keys to the car, drive it for a week and say, I like the car.

So if you decide to progress forward to a trial these are the steps that will happen. The first step is that we will get you ready for the procedure. And so, again, we will make sure that you don't have certain risk factors that would make it not safe for you to have the procedure.

Once, we've done that then we'll take you to the procedure room and we will clean off your back and we will use small amounts of medication to numb your skin, sometimes we give you medication to relax you, and we put a small needle into your spinal canal and we place a catheter.

We will place an epidural catheter into the intrathecal space, meaning the cerebro spinal fluid. Very simple procedure. It's no different from getting a spinal for a surgery or an epidural for child birth.

Then we will secure that catheter to your back, often with a special dressing and some tape, and then we will connect that catheter to a device that will infuse the medication.

And we p-place them on a monitored floor to watch them because, again, respiratory depression, if you're talking about morphine, is the one thing that you are certainly concerned about. And we monitor them and we monitor them and check on them once in the morning and once at night.

It's important for you to take an active role in your care. For example, during the trial phase we're going to listen to you based on whether you think that you're getting some sort of pain control that is substantial, whether you think that it's helped you with your function and whether you may have some side effects.

And we watch them to our end points. So, what are our endpoints? Reasonable pain control, increased function, minimal side effects. If we can't arrive at those end points within a reasonable period of time, 5 days perhaps, then it's considered a failure.

If they do arrive at those endpoints in a reasonable amount of time, typically 5 days, sometimes shorter, Then they are considered implant candidates. And then we bring them back to the hospital at a later date for a permanent implant.

Narrator (VO):

Here are some questions you may want to ask.

- When will the trial take place?
- How long will it take?
- How should I prepare?

INTRATHEACAL PLACEMENT

Narrator (VO):

The permanent placement is a surgical procedure.

When we're going to the permanent implant we take the patient into the operating room, and they're prepped and they're draped just like a surgery and that's obviously for sterile reasons and this is going to be a surgery. We bring in what's called a fluoroscopy machine, meaning a real time x-ray if you will.

We find the space, and typically it's the lower spine. Typically anywhere from the second lower lumbar vertebral body down to the fourth lumbar vertebral body. And we take a single hollow needle and we place it under foroscopic guidance into the sac that holds the spinal fluid. We then take the hollow tube and we place the hollow tube through the needle.

And, it looks much like this. We wait to see cerebro spinal fluid come back through the tube. That tells us, yes in fact we are in the cerebro spinal fluid. We pull the needle out. We then take what is called a tunneling device. It looks much like a schcabob skewer will, and we take it and we tunnel it around to the front of the patient .

And we take the little hollow tube and we attach it to the end of the skewer, if you will, and right under the skin, we tunnel it under the skin to the front of the body, typically the abdomen.

We make a very small incision in the abdomen and form what's called a pocket. We take the pump, we connect it directly to the catheter. We place the pump inside the pocket. We suture the pocket up and we send the patient to the recovery room.

When you wake up everything is so tight from the tape and everything that's holding everything in place. And it takes a good three to six months for everything, the muscle tissue, and everything to start growing over so that it actually has a spot and it doesn't move.

And it took me ah I would say, maybe, about a year, maybe a year and a half to...the scaring, you know, getting used to bending, getting used to turning and things like that. But that's about the hardest part was the surgery.

Narrator (VO):

Here are some questions you may want to ask.

- How soon after the trial can implantation take place?
- How long will I remain in the hospital?
- Does my insurance cover the device?
- Does it cover the maintenance that I will need?
- What happens if I lose my coverage?
- What long term support can I expect from my health care team if I have one implanted?
- Who should I contact if I have problems?
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LIVING WITH A PUMP

Narrator (VO):

The pump may reduce your pain, but there will be limitations on some of your activities.

Limitations on movements

There are certain restrictions involved once the pump is implanted. Certainly we don't want the patient working on –uh–... a jackhammer for instance

Typically the pump does not preclude them from driving a motor vehicle. In fact, we hope that it allows them, because we are reducing their pain, to do things like that.

And if they have a reasonably good pain control they typically start to increase their activity even by themselves without us telling them to do that. We do try to tell them to limit the amount of bending and twisting

Well you pretty much want to watch what you do as far as bumping into something, trying to lift something. You still got to remember your back is injured. Just because you have the pump in there reducing the pain doesn't mean you can go and work for a moving company. Because it's not going to work.

But, clearly any excessive bending and twisting would be would pose a problem in regards to catheter displacement or flipping of the pump itself Golf and bowling involve obviously a lot of twisting and bending. Now, if someone is an avid golfer far be it for me to tell them, well you have to give up golf. What I will tell them though is that maybe you'll have to adjust your swing.

Ah, believe it or not, I do golf. It's called half swing golf because you can't make that full swing. I'm in the water...we're river people so we have a boat so the water—I'm in the water—the water has no effect on swimming at all.

Part of the reason that we put these pumps in is to allow people to have some enjoyment in their lives and to increase their activities.

You always have to think ahead because you know it's there and you don't want to bump, rip into something, have something pointy jag, something like that. So it keeps you on your toes at all times.

Limitations on temperature

Any time that you have an implantable device it's important that you look at the manual that you are provided and also ask your healthcare pro-professional because there are certain activities that you should avoid. For example, you have to be very careful and avoid high temperatures with an intrathecal pump because they can effect the amount of drug that is infused and how fast it is infused.

Well, my hot tube, believe it or not, is set at one hundred degrees. You can't go over one hundred degrees. Depth wise it's about 30 feet...if you're scuba diving, snorkeling, anything like that.

Security systems and traveling with a pump

When it comes to security, if you are traveling, there's certain precautions that are mentioned in the manual about how you should deal with an intrathecal device. You're going to have a card so you can let the airport security know that you have a device.

You just come up and show them the card and tell them you don't-you don't wish to go through the detector because of the device you have implant, that it's possible that the magnetic field could adjust the flow of the morphine either lower or higher which would cause problems and you don't want those problems.

And also another one is, which nowadays is not as strong, are the metal detectors when you go through stores and they put those little magnets on clothing and boxes and you walk out and it goes bee-bee-bee-beep.

Well, what would happen is you would have to pull your card out and you'd have to call for store security and say I, you know, I want to check these bags...I'd like to walk around this instead of walking through it. And they read the card and usually have no problem with it.

Other health care

Narrator (VO):

Be sure your other health care providers know about your device and are prepared to properly manage your care.

It's important when you have an implantable device that you carry identification on you, letting other individuals know that you have this implantable device. So, if there is a medical condition that we need to treat you for, we understand what type of device you have.

There— One of the tests that people ask, th-can they still get with an intrathecal device is whether they can still get an MRI. You still can get an MRI with an intrathecal device. It's important to make sure after you've had the MRI that your pump is still infusing at the right rate. So what we do is we often have people go for the MRI and then we check them after the MRI to make sure that the pump is still infusing at the right rate.

Narrator (VO):

Here are some questions you may want to ask.

- What limits will I have once I have the pump implanted?
- What does my family need to know about my implant?
- Who can I call if I have questions about any activity with my pump?

MAINTENANCE

Narrator (VO):

You'll have the responsibility for maintaining your device on an ongoing basis. It's really a partnership between you and your provider.

It's important when you're considering progressing forward to an implant of an intrathecal device that you understand that you're going to have responsibility for also taking care of the device. For example, if you have an intrathecal pump you have to have the pump refilled at a regular basis. It's going to be important that you think that you're going to be able to go to those visits and keep on that schedule because it's important that we care for the pump and fill it appropriately.

How often does the patient have to come back to have a refill? It depends from patient to patient and what I mean by that is it depends on how much the patient is getting and we can change the concentration of the medication. For instance, if we have 10 mg in CC or 1 ml if you will, and the patient is required to come back every month because the patient is using a significant amount of medication we can increase the concentration of the pump there by spacing out the times that the patient has to come.

We then drain the pump, and we know based on interrogating the pump itself with a little computer system, how much we expect to be in the pump. And we drain the pump. We look at the syringe that we used to drain the pump and we should have pretty much exactly what should be in the pump or there is a malfunction, which alerts us to a problem. If we get back everything that we should get back, then we insert a syringe with the new refill, we refill the pump and the patient goes home.

I think I'm every three and a half months. I'll go in, they take a magnet, find the port hole, they put a little needle in, they draw the little bit of morphine that's left in there, fill up a new syringe, put it in, fill you back up, you're done. Takes twenty minutes, you're out of there. There really is nothing that I have to do on my part except know it's there and take care of that area of my body.

When the patient comes back for a refill, typically we always ask the patient, how are we doing? Is your pain under control adequately? What is your level of functioning. Are you having any significant side effects? Those are questions that we ask automatically.

Also, these devices they eventually –they have batteries– and the battery does not last forever. So at some phase you'll have to have this pump replaced. If you were to have a complication we may have to also revise the device. So, it's important for you to understand that before consider progressing forward with this therapy.

Now I just had a new one put in, January of this year, because the battery life is between six and seven years. And they just can't go in and replace the battery. They have to take the whole device out and put a new device in.

I tell my patients that essentially this is a marriage, and hopefully a marriage made in heaven, but we need to understand that there is not just a give and they take or a vice versa but it is in fact a marriage. The patient has to take some responsibility in that we're doing an intrathecal pump that will require ongoing care from your physician and from the patient.

And that we do expect the patient to take an active role in getting better. Not only by a pain standpoint, but from an emotional standpoint, an active standpoint, uh and we are there to help the patient along those lines, we can't do everything for the patient.

Your input's very valuable to us to help –umm– us work together to make a decision of whether this might be the right therapy for you. Once you have a permanent implant or an implantation. It's very important also that we work together and that you play an active role because this is, again, just one part of your therapy.

Narrator (VO):

You'll want to be well informed and confident before making the decision to try a device. Don't be afraid to ask questions.

Most important, remember that this device won't take away all your pain. It's up to you to take an active role in managing your pain and regaining the quality of life you want and deserve.

NEUROSTIMULATORS

How Do They Work?

Narrator: All sensations, from the softest pat to extreme pain, are felt by the brain. The nerves of the body work like an electrical circuit to send sensations from the body to the brain. Neurostimulators use electrical current to disrupt the painful signals, reducing the pain you feel.

The way that spinal cord stimulation works is you can think of it as we're blocking the pain signal from reaching their brain

The-the body in perceiving pain, th-there are– it's a very complicated system. But, typically pain signals come from the periphery and run towards the spinal cord or the central nervous system, if you will.

Well, let's think of an example: You have terrible pain in your leg following back surgery. That pain is going from your leg and traveling to your brain.

Now, the problem with chronic pain is that over time, pain can take on a life of its own. And it can actually– f-for a lack of better term 'live' inside of the central nervous system, the spinal cord or in some instances the brain itself and it does take on a life of its own.

One thing that we can do to try to prevent you from having these high levels of pain is that we can stimulate the spinal cord and by stimulating the spinal cord we're trying to block that signal that's coming from your leg from reaching your brain.

And the stimulator, the electricity that we provide through the stimulator's system itself doesn't necessarily override the pain signals but it makes the body think, via another sensation that the person is not experiencing pain.

With spinal cord stimulation your goal is to reduce the pain complete illumination is typically not possible and it's typically not realistic, but what you can do with the often significant reduction that you often get with the spinal cord stimulator – is our goal is to help you function better and do more of your activities that you desire.

When Can They Help?

Narrator: Neurostimulators may be useful for a number of conditions. They are usually considered after other, more conservative treatments have been tried.

I have lower back pain and I started going to the chiropractor for treatments over there, and then I went to a surgeon. I had a herniated disk worked on and then I had an infection and it just... it never felt any better.

The doctor had mentioned it –that I might be a candidate b–for it because I had b-three back surgeries before.

Spinal chord stimulators are approved by the FDA for certain indications and some of the conditions that spinal chord stimulators can be used for are one is that you can have pain in your legs, in your back from a previous back surgery it can be used for that condition.

Other diagnosis that will or may respond to a stimulator are diabetic peripheral neurothopy.

It can also be used for a syndrome called complex regional pain syndrome where you may have pain in your arm or your leg and you can use a spinal cord stimulator for that treatment also.

Narrator: Even if you have a condition that may respond well to neurostimulation, your attitude and willingness to play an active role in managing your pain may be the most important element of success.

People that I've seen do well with spinal cord stimulators are individuals 1) that have a condition that we know has a high likelihood of having success with the treatment, the second is that it's very important to the patient to be motivated or for the individual with pain to be motivated and take an active role in their pain condition. I think that that is extremely important. The next thing that I think is important is an individual that's working with the physician where they can have a healthy relationship which they know will exist for many years. That's also important.

Who Is Not A Good Candidate?

Narrator: If you are considering a stimulator, have a frank discussion with your provider about all the things that can have an impact on your success. These devices can be helpful, but they are *not* for everyone.

The candidates who we would not consider for spinal cord stimulation are the patients who have defused pain over their bodies, someone who may have fibromyalgia, has a poorly defined pain generator.

Spinal chord stimulation should not be considered until you've tried all of the more conservative treatment options. There's also certain individuals that should not have spinal cord stimulation. For example if you have a bleeding condition that puts you at high risk for a bleeding issue. This is not the right therapy for you.

Patients who have a history of chronic infections, again we have a patient who has the chance of seeding a device that is implanted in their body. Even if the chronic infection is far removed from the implant site.

Also, if you have an underlying psychological condition, high levels of depression or anxiety. Until those treatments and side effects are treated it's important that you don't move forward with the surgery.

The patient has to have the mental capacity, if you will, to be able to understand what they can do and can't do with the stimulator. What to expect from the stimulator. If the patient can't understand the abilities and what they can get out of, if you will, the stimulator, then they are probably not good candidates.

About The Device

Narrator: Let's look at the elements of a neurostimulator.

Well, spinal chord stimulation has been around since the late 60's and the technology has had rapid advancements over the last 30 years.

Spinal chord stimulator has two parts, the first is the lead which is a, usually, small wire shaped device that we place in the epidural space which is within the spinal canal.

And, it looks much like fishing line, if you will, with tiny metal contacts on it.

The second component that is also implanted is the battery and there's two types of batteries. There's rechargeable and not rechargeable batteries.

And the third part of the system is a hand held device that's given to the patient that allows the patient to actually interface right through their body and controls the amount of stimulation that they get and where the stimulation is going to be in their body.

What Does A Neurostimulation Feel Like?

Narrator: A neurostimulator disrupts the pain signal by providing a small electric current to the effected nerves. But what does *that* feel like?

You know, patients often ask me, 'What does the stimulation feel like?'. And, the description that I hear from patients are, a tingling sensation, a soothing sensation, 'It just makes me relax'. 'it takes away the pain.'. People say that they know it's there they just can feel some vibrations. But, what they do notice is that what they are feeling now is not the pain.

The stimulation feels like tingling. It goes along m-my lower back. Down m-my one leg and down the other leg.

The feeling that – t-the only way that I can describe it is, you know how your legs fall asleep, that's how it feels like.

They give you programs so you can move it from one leg to another. You can move it into your legs, you can move it up into your back. Like a pulsating sensation going through your legs.

PAIN CONTROL EXPECTATIONS

Narrator: Most people with pain just want their pain to be gone. But in most cases, that expectation isn't realistic. But with a combination of pain management techniques, relaxation, pacing, exercise, and more, you can have higher function and a better quality of life.

When we are discussing a stimulator with a patient, probably the first question that they ask is 'Will it take away all of my pain?'. I think that that is what they are most focused on, because pain has been such a huge part of their life that they are looking for a resolution to that pain.

With spinal cord stimulation your goal is to reduce the pain complete illumination is typically not possible and it's typically not realistic, but what you can do with the often significant reduction that you often get with the spinal cord stimulator – is our goal is to help you function better and do more of your activities that you desire.

I would encourage people to focus on their function and where or not these treatments and other interventions that they're doing help them live more full lives: focusing on that aspect of the outcome versus the pain intensity reduction.

I had a lot of pain going down the left side of my body. That's all gone. So... but it has improved for me. The doctor has me on medication and I just take it as needed.

There may be sometimes you still need to take pain medications. And there may be other time two that we also want to get you involved in counseling or psychological counseling to help you with some forms

of relaxation strategies. But again, this is just one tool and it's a tool that can be helpful, but it needs to be incorporated into a very functional pain program— plan.

Well, it gives me my life back. And, I-I'm able to do more things, do some small chores around the house, like go on vacation too and enjoy my grandchildren.

RISKS

Narrator: No procedure is without risks. Be sure you discuss the risks that apply in your case with your provider.

The risks from the spinal cord stimulator itself are no different than any other implanted device. 1) We tell our patients bleeding and 2) we tell them infection. Those are real –umm– concerns. Bleeding being less so. We always make sure that they aren't on any anticoagulants, medications that would preclude them from clotting appropriately.

There are risks associated with the implant for a spinal cord stimulator including bleeding, infections, nerve damage, there's a risk headache from what we call a post dural puncture headache if the needle was to go inside of the spinal stack. You need to realize those risks, and of course we'll do everything to minimize them.

Down the line, meaning once the site has healed, the major concern would be a shift in the stimulation patterns.

If you have a spinal cord stimulator and you're not getting the coverage in the area. What I mean by coverage is that tingling sensation from the device in the area where you're having your pain.

The lead itself can actually move. Now, will that cause a danger to the patient? It won't cause a danger per say to the patient but unfortunately if the leads move the leads may not cover that painful area that they were covering before movement in the spinal column. And that leads to another intervention to try to replace or revive the leads, if you will.

There's other risks too that you need to worry about with a spinal cord stimulator. One is that hardware can fail. With any implantable device and it's important that we do things to limit hardware failure and if you were to have some sort of problem with the hardware then we help you correct it.

BENEFITS

Narrator: There really are two major benefits to this therapy. First, it can reduce your pain enough, in combination with other pain management activities, to help you function more fully in your daily life. And second, it may reduce your need for medications and the side effects they can bring.

Spinal cord stimulation can have many benefits, one is, of course, our goal is to help reduce your pain. With that reduction in pain, we want to improve your function. We also in some cases can help you reduce the amount of pain medication you're using.

With a neuro stimulator it's non-pharmacologic. We don't need to worry about the side effects or complications of long-term opioid use.

And, we need to worry about tolerance, dependence, and addiction. Certainly at any age we need to worry about tolerance and dependence. But especially in our younger population, they will need more medication for the same effect, even if their chronic pain problem doesn't become worse over time.

Having realistic expectations with regard to any treatment for pain is very important because if you come in thinking that any one treatment is going to be the magic solution to your problem it can lead you to frustration because the evidence has shown us that there really isn't one treatment that's going to solve the entire problem and it's really a combination of things.

THE PROCESS

Narrator: There are several steps in the process of getting an implant. Your health care team will work with you every step of the way.

Psychological evaluation

As a part of the preoperative phase of spinal cord stimulation, in addition to testing that needs to take place, such as lab and x-ray testing, the patient is also required to have what we call a psychological evaluation prior to the implant. I tell the patient that the purpose of the psychological evaluation in my eyes is two fold. 1) the majority of the insurance companies require psychological evaluation prior to the implant. And, 2) it's good for them to evaluate and talk to a professional about their pain and to explore from their point of view, are there any other avenues to help them with their pain management?

It's for many people, this –uh– of when they're asked to see a psychologist as part of an evaluation for a stimulator or a pump, it often is the first time that they might have seen a psychologist and they might be a little afraid. I think that a lot of people worry that when they're told to see a psychologist that someone is thinking that their pain isn't real or that they're faking it or that they are exaggerating it. And nothing really could be further from the truth.

Yes, I did go through the... to see a psychiatrist. It was ok. I had never been to one before –umm–but I feel that it's important

So as part of the evaluation we may have– a psychologist may have you complete a series of tests. These are often paper and pencil tests that ask you a number of questions: usually covering things like your mood, your – relationships with family and friends, how do you cope with stress...

It's a... something is being implanted into you and I think that you need to know if you're mentally r-ready for something like that. Because it is a big change, you know, but i-it went fine

So the kinds of things we're also looking for during a psychological evaluation are things like–uh– depression and anxiety which we know that people who have high levels of those tend not to do so well in the recovery phase of the operation. Additionally we're looking for –uh– people who may be having difficulty managing their medications or maybe using other substances in order to either cope with the pain or often the effects of pain in their life.

So part of our job is trying to identify those types of factors and work with you to get them under better control so that you can have the best chance of having an optimal outcome.

When you see a psychologist as part of your treatment team, their job really is to help keep the focus on you and really looking at taking care of your mind, your body, and your spirit. And making sure that the interventions that are being planned are going to be the most effective for you.

The Trial

When we approach a patient about a spinal cord stimulation it goes into two phases. The first phase is the trial phase. The trial phase is a very important phase because it is the phase where that patient is allowed to determine whether or not they will proceed with the actual spinal cord stimulation. The trial is really the actual procedure, done with an external stimulating device. It is the only operation that we probably know in this world that the patient is allowed to try it first

If you're considering it at least do the 5 day trial 'cause that will tell you right off, yes or no. There's no maybes in the deal. It's yes or no.

They will undergo such testing as blood work, urine analysis, chest x-ray, and an EKG. In addition to that they will have MRI's performed of their low-back and mid-back if we're doing the procedure for, –um– the lumbar region. And, they will have MRI's performed of their mid-back and neck if the procedure is being done for their neck and arms. If the MRI's are not updated, we need to have those done prior to the trial.

What we do is we place a small electrical wire beneath the spinal canal, and we give you an external power source that is not within you that controls the power level of this device. so what, all you have is that small electrical wire in you, you have a special dressing on your back, and everything is taped in place.

Once the catheter is put into place by the surgeon or the pain physician, the patient is then asked a series of questions. The catheter is attached to an external stimulating device and the patient will actually feel the stimulation, very similar to the implant

We want to make sure that we're covering the area that's bothering you.

We want them to be able to tell us specifically where that stimulation is occurring; 'I feel it in my right foot.', 'I feel it in my right knee.', 'I feel it in my entire right leg.'

Typically patients who go undergo spinal cord stimulator trials are discharged the same day of the procedure.

The trial typically lasts from 3-5 days and during that you get to test the system and see if it helps you deal with your pain control. You also get to see if the sensation that this device is providing is comfortable to you and it's also important to see during that period of time if you're comfortable using the programmer, which allows you to turn the device on, determine how strong the stimulation system is, and to see if this is something that you'd be able to use responsibly in the future.

Yes, it seemed to work out real well, and it was ok for me and I didn't seem to have a problem with it so we decided that I was –uh–eligible for a permanent.

Implantation

Interviewee uses model to describe the spinal cord stimulator implantation.

When we move forward with a permanent implant for the spinal cord stimulator, it's a very straightforward process. The patient goes into the operating room, we lay the patient down on their abdomen, on their belly if you will, prep them and drape them completely in a sterile fashion, because it is a surgery

When you have a permanent implant, when we're first placing the lead, it's important that we're covering you're painful area. So, during that part of the implantation stage, you're still awake and alert. Again, we will give you medicines to relax you, to reduce your pain from the surgical technique, but you still need to respond to us so that we know that we're helping put the lead in the appropriate place.

And, this is the spinal cord and column from the front, and this is the spinal column from the back. And, we enter the spinal column with needles, and once we're into the spinal column epidural space, much like someone would get an epidural for labor and delivery, if you will.

We pass a very, very thin wire through the Buchwalter needle and we thread it up into the epidural space itself, and it lays along the back of the spinal cord. And, the lead itself has contacts on it and those contacts are what generate the electricity.

When we go to implant the spinal cord stimulator battery at that point we can make your more sleepy and we can make you more comfortable.

And what we call a tunnel is made with a-a tunneling device that looks much like a kabob skewer, if you will. And we tunnel it underneath the skin and we tunnel it to the back of the patient. Now, it's tunneled below the belt line but above the buttock, and we do that for a reason. We make a small incision at that area and we make a pocket, and we implant the generator itself into the pocket. We connect the wire to the generator and we sew the pocket shut.

After an implant, there's –most likely in many cases you will go home the same day as the surgery. So, what's important during the early stages that we do everything to lower your risk of infection. So that means that you manage your bandages the way that your physician instructed you to and that if you are to get any fever, night sweats, or any drainage from you incisions that you call your healthcare provider immediately.

Concerns that the patient may have in the preoperative period, meaning close to the implant itself, are pain where the generator sight has been implanted or pain where the leads have been implanted over the spine. A fluid collection around the site of the generator would also be of concern.

Post operatively after an implant, patients will be restricted to activities. And, I will divide that into two sections. First of all that immediate post operative period of 6-8 weeks, naturally those activities are going to be much more restricted like they are for any post surgical period, whether it's an appendectomy or a spinal cord stimulator, you're going to have activity restrictions

I had to watch– I wasn't allowed to put my hands up over my head. I wasn't allowed to bend down. So, I was sort of confined to the house at the time

First of all, for the first few weeks they can't drive. Um, in addition we constantly need to reinforce to them restrictions such as no twisting or bending at the waist if it is for the legs and that we're putting the stimulator in low back. Also, we ask that they don't raise their arms up above their head. Um, jerking motions, um, bending over to tie their shoes, um, we encourage them that you want to bring your feet up to you, not bend over to tie your shoes.

In order for you to get the best result from your stimulator, it's important that you follow those activity instructions during the first 10-12 weeks so that your body has adequate time to heal and scar that lead into place.

Reconditioning

So many people who have had a spinal cord stimulator have had pain for a long period of time, so again, it's important to have realistic expectations. And it's important that once we have your pain under better control that we help you take that pain control and we—our goal is to help you function better, so that may mean getting involved in physical therapy.

Patients prior to stimulation, typically, are what we call deconditioned. They have been experiencing a lot of pain that has affected their lifestyle. Their activity has been limited. And therefore often—therefore their strength; their muscle strength, their tolerance, have been reduced.

If we can get their pain under control to a reasonable degree, we can then get them involved with physical therapy and occupational therapy which will continue to get them better.

In order to help myself out, I went back to physical therapy. In order to get the strength back in my legs, because I was laid up for such a long time.

That physical therapy program is directed to two areas. 1) To help them strengthen and recondition themselves, and 2) is to help them learn how to move better. For example: not bending down to tie their shoes; bringing their feet to them instead of bending at the waist. And, learning how not to twist and turn and do those activities that you would do day to day, but do them in a different way.

LIVING WITH A STIMULATOR

Narrator: Living with a stimulator requires a commitment from you--- to be mindful of it in your movements, to maintain it, and to use it as part of an overall pain management strategy.

Limitations on Activities

A person who does have a spinal cord stimulator does have some changes in their lifestyle.

And one of the concerns that people have with the spinal cord stimulator is that there are certain activities that I still have to be careful of, because I could put the device at risk for migration and that's when the lead moves.

Patients always need to be conscious of the fact that they have a stimulator in place. So, yes; there are certain activity restrictions that they will have.

Examples are: golfing, examples are bowling. And so make sure that you understand, before you do those activities, what the risks are you know what the risks are. If you decide to do those activities make sure that you've discussed it with your healthcare provider and make sure that you understand the activities that you can do to restrict that risk.

I can't go skiing in case I fall or anything.

Activity restrictions will be things like jerking motions. Patients who are involved in maybe in a job that requires excessive heavy lifting would not be able to perform that task anymore.

You can't lift real heavy objects, you can't bend over straight to the floor and you can't reach right straight up over your head. So y-not many limitations but there are a few limitations.

Sports like tennis or golf, where twisting and jerking motions occur are not encouraged for the patients to complete. And, one of the things, when I am doing some counseling with patients about thinking about going ahead with spinal cord stimulation is –uh– we talk about what activities they enjoy in life now.

Well, the activities, I can't do any strenuous activities. I can't shovel snow, and a lot of other activities. Wrestling with my grand kids or anything like that. Same thing with going to a park maybe and riding fast rides and jarring rides.

I go out walking with my husband. We can go to a party, throw horseshoes, go fishing.

In regards to a normal sexual relationship with your significant other in view of having a indwelling spinal cord stimulator, absolutely you can. It does not preclude sexual relations with your significant other. In many instances, chronic pain precludes someone from having those and once we have their pain reasonably under control, they can resume a healthy sexual relationship.

I think that it worked out real well. I'm yes I'm limited to some of the strenuous things I have to do. But there's a there a– there is a lot of stuff that I couldn't do before with the pain that I had.

Limitations on travel

When I go through the airport, I can't go through the regular metal detector. I have to tell them that I have a stimulator and I have a card that shows them that I have it in my back. So, they–what they do is they pull me on a side and they raise my hands and they– they hand search me. So, they check that way instead of by machine.

Yes, I just recently did travel by air. And, yes you do have a card like a person who has a pacemaker put in. And you show them your card. This last time I showed them my card, but I still had to go through the scanner. But, that's fine. I mean, that's the way that it is today, in today's world. So, but that was the only problem that I've ever had. You know, I've never set off any alarms or anything like that.

Limitations On Other Medical Care

When you have an implantable device, there are certain tests that you may have go for. Maybe not even having to do with your painful condition, but other tests. It's important that you check with your implanting physician to make sure that it's safe to go forward with those tests prior to doing them.

With an implant there are some medical treatments that we need to guide the patient...of the top priority would be an MRI.

The– only one company makes a device that is safe for an MRI and that is only for a head MRI. So, if someone has to have a body MRI, they

It's important, when you have an implantable device, that you carry some form of identification letting others know that you have an implantable device. For example, if for some reason you were found

unconscious, it's important for us to know as healthcare providers that you may have an intrathecal device or a spinal cord stimulator.

ONGOING RESPONSIBILITIES

When you get a spinal cord stimulator implant, that's just the first step, you're going to have to maintain this device for many years, and you're also going to have times when you're going to need to have the device reprogrammed. And, it's important that if you're having any difficulty with the device that you call your healthcare provider and seek help.

Charging the Battery

In order to get the best results through the spinal cord stimulator system, there's a few key tips that I would give you. The first tip is that if you have a rechargeable battery that you understand how to maintain that battery and how to recharge it appropriately because that will improve the lifespan of your device.

The difference between a rechargeable unit and a non-rechargeable unit is 1) size. This would be a non-rechargeable unit. It's a little bit bigger and depending on how often the patient uses the unit throughout the day— most patients use it typically 24 hours a day, some patients just use it during waking hours or during painful episodes. This will last anywhere from perhaps 2 years to 5 years.

And then it has to be replaced. The entire generator has to be replaced. Unlike the rechargeable unit which is much smaller. But it has to be recharged depending on how often they use it, anywhere from once a week to two times a week. And that's the difference between the two.

The recharging unit is relatively simple. We ask the patient to do it, probably at least once a week, but that depends on how often they use it. This is a belt that they place around their waist. This is the recharging unit itself that they place in the belt that fits directly over the generator site. and this is the controller which they turn on and they charge it for exactly 30 to 40 minutes once a week.

I have a belt that gets put around my waist and there's a charger on it and it goes over top of the — uh— battery that is implanted into my body. And then it takes approximately three hours for it to charge. I have a hand held device that shows me how fast it's charging.

Programming

The second thing is make sure that you really understand the programmer and make sure that it's— think of it like a TV remote control. If you want to get the most out of your device that's the programmer that allows you to control your device. So really have a good understanding.

In terms of spinal cord stimulation how does somebody get the most out of their stimulation? They get the most out of their stimulation by knowing that they play a big role in how their stimulation works.

There are different programs that can be used. The patient has a hand held device that will interface right through their body to the generator and tell the generator what to do. In other words they can turn it on, turn it off, turn it up, turn it down, and run different programs.

We have patients that have it on 24 hours a day. They might turn it down lower in terms of intensity at night time, but they wear it 24 hours a day. I have one patient who turns it off at night but prior to getting up in the morning he puts it on for 15 or twenty minutes before he gets out of bed and it helps him get out of bed and not be in a lot of pain.

Just— I get up in the morning I turn it on and you pretty much forget about it all day long. It became— it became part of me. You know, it's inside of me, I've adjusted to it. And then at night, I just turn it off and I go to bed. I-it's that easy

And, I have people that know that if they are planning to go shopping in the mall that they turn the stimulator on prior to going shopping in the mall. So, first of all is knowing your body and knowing how your body responds to that stimulation. And, knowing your pain, and knowing what triggers you pain more and how you can work stimulation into helping reduce your pain.

Oh, when I do a lot of walking, I bring it down into my legs. So that—you know— I can feel the pulses in my legs while I'm walking. And then if I do a lot of sitting, I bring it up into my back a little bit more. So that pressure goes away.

We actually spend a lot of time with the patient, teaching the patient different programs. But, more than that we have the patient's significant other or close family member with the patient, when we're teaching the patient.

The other thing that we do is make sure that we're available to the patient, anytime the patient has a question about what they can do.

Implantable devices for chronic pain can be very helpful, but again in certain individuals. It's not for everyone, but in the appropriate individual that has a —the appropriate outlook for the device, understands realistic expectations, is willing to have a productive relationship with their healthcare provider and willing to care for the device appropriately.

THE BIG PICTURE

Narrator: To get the most benefit from a neurostimulator, you will need to understand the device and its limits, have a good working relationship with your provider, and take the responsibility to use a full range of pain management techniques in addition to the device.

Implantable devices for chronic pain management, whether it be an intrathecal device or a spinal cord stimulator, in the appropriate individual, these devices can be extremely helpful, they can help improve your pain, help improve your function. But, there are certain things that these individual have to realize.

One is that you have to have realistic expectations; two is that you have to be willing to have a productive relationship with your healthcare provider for many years, and three you have to all of the other appropriate strategies for being in control in order to get the best results out of these therapies.

If— In most instances we are not successful in taking 100% of their pain away. Even if it's 75%, down the line whatever they have left is going to be enough to be significant to the patient so we have to introduce different modalities.

I-I don't think there's any magic, you know. Until you get the system, and that's what the trial period does. It shows you that this is what the system. It shows you what you're going to have in terms of tingling in your legs and back and how you're going to control it. And the—the pain —y—that the pain is getting rid of. I—I don't think that I don't see it get rid of all of my pain. Which, the reason is I take a little bit of medication to help that out. But, —I don't see anything in magic today.

The other thing that we do tell the patients—that we would like them to do is see a pain psychologist for other modalities, mainly imagery, coping skills, cognitive skill, biofeedback that may help them. Physical therapy, once we have their pain under control—Many times, patients can't tolerate the physical therapy they need because of chronic pain.

So with a stimulator or a pump, it—you should think about it in the same way that you think about any other pain management treatment. It's a tool that you can use that is... it's one of many tools that you can use to help have a full life in spite of pain.

Absolutely, patients who are going into spinal cord stimulation really need to give it a lot of thought. We encourage family members to come in with them on their preoperative visits so that they can also ask questions. It is a life changing event for them. It's not only something that is going to be a part of a multi-modal approach to their pain management but they are going to have life restrictions. But they are also going to be able to do things that they haven't able to do before because of their pain.

The advice that I would give somebody else who is...thinking about a spinal cord stimulator would be get as much education resources as you can out there.

Write up questions that you might have, take them to your doctor. Ask your doctor if he... you know, he should be the type of doctor who is willing to sit and answer your questions. If he isn't then he's not the doctor for you. Talk to other patients, if able...to, that have had it put in for maybe the condition that you have that you're going to have it put in for.

After all it was my body. It was going in— if I chose, it was going into my body and I wanted to know as much as I could.

They need know that there are still things that they need to do to help themselves. Whether it's continuing home exercise programs that they were taught in the physical therapy program. It means that they need to eat healthy. It means that they need to stop smoking. All of those things affect pain.

So, looking at really all aspects. So, looking at devices as a can be an important tool. Medications can be important but also self care, stress management, social support, managing your mood, managing your activities. All of those things together have more of a synergistic affect and can really then is when we can see people make radical changes.

That's what stimulation is all about. It's getting patients to hopefully get back to a more normal lifestyle. It is so rewarding to have a patient come into the office and have a smile on their face.

QUESTIONS TO ASK YOUR HEALTH CARE PROVIDER

- Does my insurance cover the device?
- Does it cover the maintenance that I will need?
- What happens if I lose my coverage?
- What long term support can I expect from my health care team if I have one implanted?
- Who should I contact if I have problems?
- What limits will it place on travel and other activities?
- What does my family need to know about my implant?