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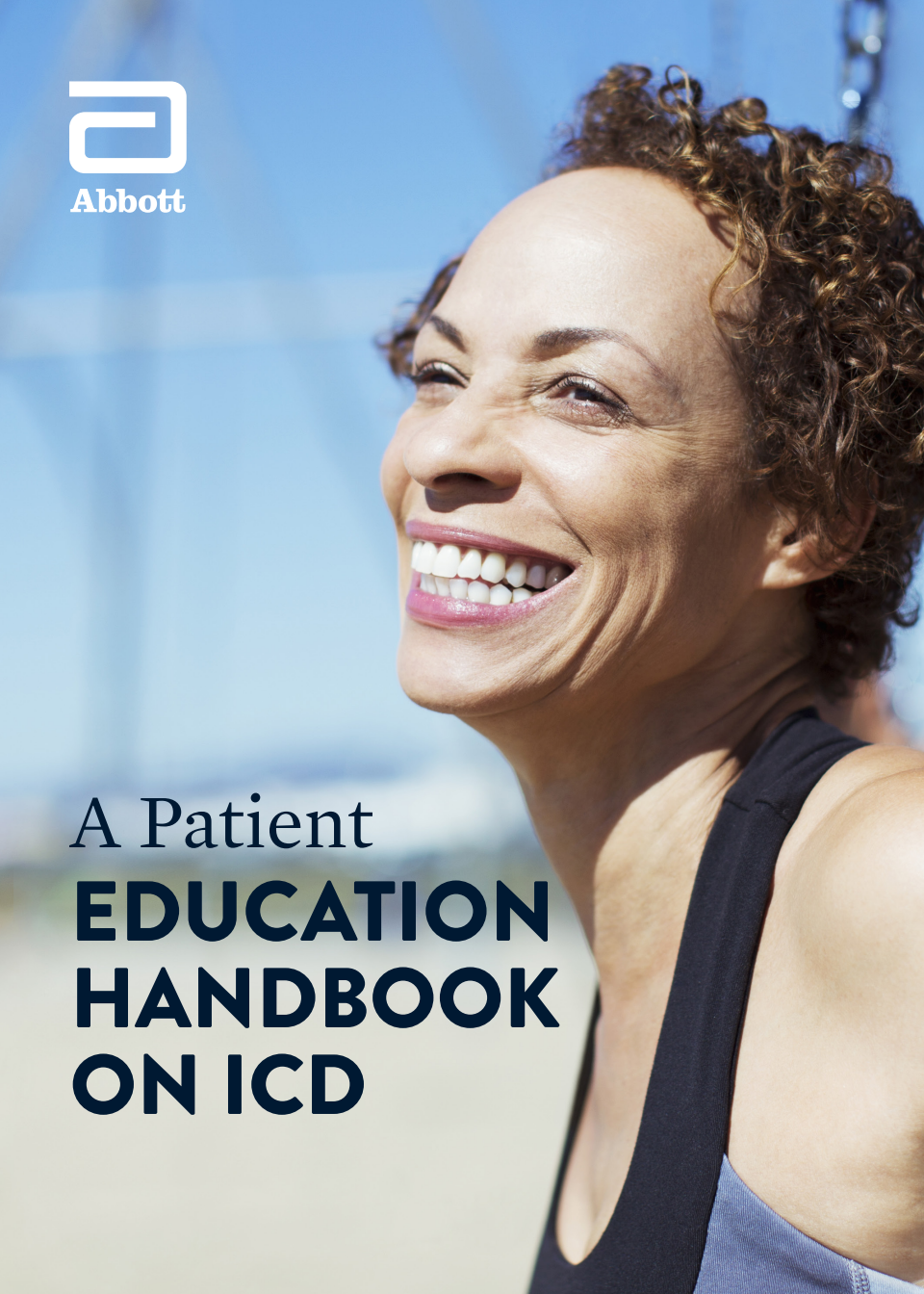

A Patient EDUCATION HANDBOOK ON ICD

YOUR ICD – AT A GLANCE

- Your heart is a muscle about the size of your fist and has a complex electrical system. It generates its own electricity, which causes it to contract and relax in the proper timing sequence, pumping blood to the body.
- For the heart to work correctly, the chambers typically beat in a coordinated manner at a resting heart rate between 60 and 100 beats per minute.
- Electrical signals can become blocked or irregular, causing the heart to beat too quickly (tachycardia or fibrillation) or too slowly (bradycardia).
- Implantable cardioverter defibrillators (ICDs) are small devices that could fit in the palm of your hand. They are usually implanted just underneath the skin in the chest area.
- ICDs help to treat dangerously fast rhythm disorders, called ventricular tachycardia (VT) and ventricular fibrillation (VF), in the lower chambers of the heart (the ventricles).
- VF causes the heart to beat so fast that it quivers and the muscle no longer can pump blood. This leads to sudden cardiac arrest (SCA), which is fatal if not treated immediately.
- When VF occurs, the ICD can send a shock to the heart muscle to defibrillate it or stop the cycle of rapid twitching.
- ICDs have saved hundreds of thousands of lives and offer an added level of security for those patients at risk for SCA.

FREQUENTLY ASKED QUESTIONS

Living with your ICD

An ICD is a small implantable device that looks similar to a pacemaker. Most ICDs can fit easily in the palm of your hand. While pacemakers can speed up a slow heart rate, ICDs were designed to slow down a fast heart rate and to deliver lifesaving therapy in the event of a dangerously fast heart rhythm. ICDs have saved hundreds of thousands of lives, and they offer an added level of security for those patients at risk for SCA.

Why do I need an ICD?

The heart has a complex electrical system. It actually generates its own electricity, which causes it to contract and relax in the proper timing sequence, so that it can pump blood to the body. Electrical signals can become blocked or irregular, causing the heart to beat too quickly (tachycardia) or too slowly (bradycardia). For the heart to work correctly, the chambers must beat in a coordinated manner at a resting heart rate typically between 60 and 100 beats per minute.

ICDs are designed to treat dangerously fast rhythm disorders, called VT and VF, in the lower chambers of the heart (the ventricles). When the ventricles fibrillate, they do not contract normally, so they cannot effectively pump blood. The instant VF begins, effective blood pumping stops. Most

Ellipse™
ICD

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doctors define VF as an occasion when your heart tries to beat 300 or more times a minute. The quivering heart muscle no longer can pump blood, which can become fatal if the condition does not receive immediate attention.

Most often, VF leads to SCA. It is important to know that, despite its name, some people do survive SCA if immediate therapy is given. Immediate treatment involves cardiopulmonary resuscitation to help keep blood pumping. In addition, a shock from either an external defibrillator or an ICD within four to six minutes is necessary to stop the chaotic electrical activity, restore normal heart rhythm and help to avoid major complications from the period of time during which blood flow was markedly reduced.

How does an implantable cardioverter defibrillator (ICD) work?

An ICD is a medical device that is implanted in the body to monitor your heart's rhythm for certain types of very fast and potentially dangerous rhythm disorders. The ICD is implanted under the skin and attached to one or two leads (thin, coated wires), which are placed in or on the heart muscle.

As soon as a spell of VF occurs, the ICD can send a shock to the heart muscle to defibrillate it or stop the cycle of rapid twitching.

How does a shock restore my heart rate?

The pattern of electrical beats in your heart is called your heart rhythm. Your ICD monitors every beat of your heart. When it senses a dangerously fast rhythm, the ICD can give an electrical shock. This interrupts the pattern of the rhythm disorder and can allow the heart to resume its normal rhythm.

What other therapy does my ICD provide?

Defibrillation is the most important single thing an ICD does. Some ICDs also offer very low energy therapy to treat certain milder types of rhythm disorders. This kind of therapy is called antitachycardia pacing. In addition, the ICD has the ability to pace your heart the way a pacemaker does.

While the device is helping your heart to maintain its rhythm, it is also storing a lot of information about your heart. This information can be retrieved by your doctor, and it helps him or her to program your device in a way that it provides you with the best therapy for your condition.

What does a shock feel like?

Different people perceive shocks differently, so there is actually a wide range of experiences for an ICD shock. Some patients may not even be aware of the shock. Other patients may experience a mild sensation. Still others

describe it like being kicked in the chest. Though it may be uncomfortable to receive a shock, it means your ICD responded to a very dangerous rhythm disorder of your heart.

How often will I get shocked?

How often a device shocks varies by patient. Some patients have had ICDs implanted for years and have never experienced a single shock. Other patients are shocked more frequently. It is not unusual to find ICD patients of many years who have been shocked only once or twice. Ask your physician what you might expect, but know that not even your doctor can fully predict the therapy you may ultimately need.

What do I do if I get shocked?

The best thing to do is to find a spot where you can sit and catch your breath. After a few moments your heart should go back to normal rhythm. You may feel a bit lightheaded or a bit disoriented for a short time, so take it easy. Some patients need only a few minutes to recover, while others may take hours. Most physicians suggest that their patients call the office when they get a shock. Your doctor may ask you to come into the office after a shock so you can be checked. Because your doctor knows your medical condition, it is best to ask him or her what you should do if you receive a shock.

How does my ICD know not to shock me when I have an appropriate fast heart rate?

An active person will experience appropriate tachycardia with periods of exertion. This is normal. When the activity stops, the healthy heart gradually goes back to its normal speed.

Many advanced ICDs have methods to tell the difference between appropriate and inappropriate tachycardia. In medical terms, the difference between a fast heart rate caused by exercise and a fast heart rate that could be dangerous is where the electrical impulse originates in the heart. If you are exercising, a healthy heart generates an electrical output in the upper chambers of the heart. This then travels down the electrical pathways in the heart to the lower chambers, causing them to contract. Dangerously fast heart rhythms originate in the ventricles. ICDs use formulas called discriminators to distinguish between the two.

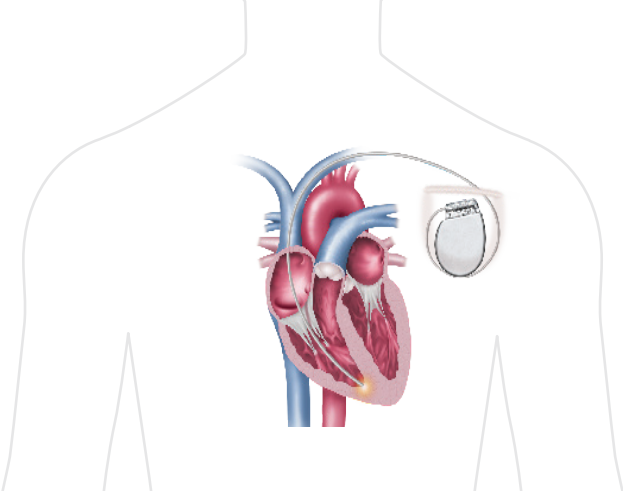
How is an ICD implanted?

Usually, surgery for an implanted cardiac device is not done under full anesthesia. It is usually implanted under what doctors call "conscious sedation." You will be given medication to help you relax, but you will still be aware of your surroundings and able to hear and even talk with the medical team as the procedure is being conducted. Numbing medication will be given where the incision is to

be made. While the local anesthetic will block sharp pain, you may still feel some pressure while the device is being implanted.

What happens during surgery to implant an ICD?

The doctor will first make a small cut in the upper chest and locate the vein for lead implant. A small puncture is made in the vein, and the leads, long flexible wires, will be guided down the vein to the heart. The surgical team monitors the progress of the lead using a large overhead monitor called a fluoroscope. This is a kind of moving x-ray picture. The leads are placed, which is often the most time-consuming part of the operation. The doctor will test the leads to make sure that they are in the best position to deliver energy to the heart.



Your doctor will make a "pocket" by separating the skin and underlying tissue from the muscle, as this will be the location the ICD will be implanted. The ICD is connected to the leads and it is placed in that pocket. Once the device is in place, the doctor will close the incision.

Many people just notice a small scar and a small bump after the incision heals. However, in people who are very small or thin, the device might stick out more. If you are worried about how this might look, talk to your doctor. In some cases, the device can be located somewhere that will be less noticeable.

The length of the surgery depends on what kind of device you are getting, as well as your specific anatomy and the time it takes to locate a good position for the lead. Implanting an ICD generally can take one to two hours.

What happens after the surgery?

Right after the surgery, you will be taken to a recovery room. You may experience some tenderness at the implant site for a while. You may stay in the hospital several hours or several days. You should discuss the specifics of your case with your physician.

In the period after surgery, follow all of your physician's instructions carefully. Above all, be sure to report any redness, soreness or tenderness around the implant site. If you are already back home when you notice redness or

soreness around your scar, call your doctor immediately — do not wait for your next appointment.

How long will it take me to recover?

It is difficult to be specific about your recovery because every patient is different. Follow your doctor's instructions carefully. Your activities will be restricted for a period following surgery. After you have recovered from the operation, your physician is your best source of advice on the subject of resuming your normal activities.

What risks are associated with having an ICD?

Your doctor is the best source of information about the risks of having an ICD. Be sure to talk about all your questions and concerns.

A small percentage of ICD patients will develop complications because of the implant surgery. They may include, but are not limited to, infection, a reaction to a drug used during surgery or to the device itself and blood loss or damage to a blood vessel, the heart wall or other organs. After the surgery, you will feel some discomfort, and you will be tired. As you recover, you should feel better. However, some patients continue to feel some discomfort where the ICD is implanted; speak to your doctor if this occurs.

It is important to follow certain precautions after you get an ICD. You can use most household appliances safely, if in good repair and properly grounded, but you should avoid items with strong magnetic fields. Your doctor will discuss with you all the precautions you should follow. Also, completely read any literature that came with your device, and pay close attention to sentences that are labeled with the word "warning" or "important." Those sentences contain important safety information.

When an arrhythmia occurs, ICD treatment may not end it, or treatment may make the arrhythmia worse. In either case, the ICD then delivers stronger treatment to try to end the arrhythmia. There is a slight risk that the ICD may fail to deliver treatment when you need it, or it may deliver treatment when you do not need it. The ICD may not always eliminate all symptoms of the arrhythmia. You still may feel lightheaded or dizzy, or you may faint.

How often do I need to see my doctor once I have a device?

You will be asked to see your cardiologist or physician regularly for routine checkups. Immediately after your surgery, you will probably be asked to visit the doctor several times. These are all very important visits, and they allow the physician to be sure the device is working properly. Sometimes minor adjustments are required, which can be done painlessly in the doctor's office using a tabletop computer called a programmer. Your doctor will

also want to check the incision to see how it is healing. After that, your physician will want to see you for regular follow-up visits. Your physician will advise you as to the frequency of the follow-up visits. If everything is stable, your doctor might only need to see you once or twice a year or after you have received a shock. Your doctor may also want to see you if your family or primary care physician has any concerns.

If multiple changes are made at the time of an office visit, your physician may want to see you sooner to make sure that these changes are effective and not causing any other problems.

What happens during a follow-up appointment?

The follow-up is completely painless and usually takes less than half an hour. During this time, the doctor or nurse will put a wand over the spot where the device is implanted. The wand is about the size and shape of a television remote control device.

For some devices the information is sent wirelessly. The device tells the programmer about the battery status, performs other system checks and can report on your heart's rhythms since your last follow-up. If you have experienced any shocks or therapy during this time, the programmer will get that information as well.

The doctor can also adjust certain settings on your device to adjust your therapy, if needed. For these reasons, it is

very important that you keep your follow-up schedule with your doctor.

How will my doctor change the batteries in my device?

Implantable devices are powered by special batteries that are made to last a long time.

These batteries do not suddenly wear out, like flashlight batteries, but they give plenty of warning that they are reaching end of service.

Your doctor will monitor the battery as part of your regular device check-up. Most device batteries last six to twelve years although it depends on the device and how often it sends electrical impulses to the heart.

When the device indicates a low battery, your physician will arrange for a replacement.

Implantable devices are sealed shut, so the batteries are not replaceable. Instead, your doctor will implant a new device. Typically this surgery does not last as long as your original device implant because your new device will simply be plugged into the leads that have already been placed in your heart.

Will an implantable device change my life?

The truth is that your life could be longer, more productive, happier and healthier. After surgery you will

need to take it easy for a while. Be sure to carefully follow all of your doctor's instructions. But pretty soon you should be able to do all the things you used to do — or more.

Do I have to stay away from things like microwaves, magnets or strobe lights?

Implantable devices cannot be damaged by using properly operating household appliances, such as microwave ovens, electric blankets and most power tools. Using electric arc welders or working on automobile ignition systems also will not damage ICDs; however, there is a possibility that

they may briefly interfere with proper ICD operation. Some medical equipment also may interfere with the function of the ICD. If you become lightheaded or feel palpitations (rapid, irregular heartbeats), you should simply turn off the electrical equipment or walk away from it, and the implanted device should resume normal operation. Contact your doctor if you have questions or concerns.

If using problematic equipment is something that you cannot avoid, your doctor can tell you what to do. You might also contact the device manufacturer for guidance.

What if I am going into a hospital or clinic?

Tell the hospital personnel that you have an ICD before you undergo any medical procedure, such as electrosurgery, electrocautery, external defibrillation, lithotripsy or radiation therapy, or a dental procedure or test. Do not enter areas that have a “no ICDs” symbol posted.

Do not undergo any diathermy procedure, even if your ICD has been turned off. It could cause damage to the tissue around the implanted electrodes or permanent damage to the ICD.

Will medical equipment interfere with my ICD?

Although most medical equipment will have no effect on your ICD, some may affect its function. Tell the hospital personnel that you have an ICD before you undergo any medical procedure, such as electrosurgery, electrocautery, lithotripsy or radiation therapy, or a dental procedure or test.

Do not undergo any diathermy procedure, even if your ICD has been turned off. It could cause damage to the tissue around the implanted electrodes or permanent damage to the ICD. Try to avoid electrical nerve and muscle stimulators (TENS units). They may interfere with the function of your ICD.

Can I use a cell phone?

Cellular phones, which send electromagnetic signals, can interfere with proper device operation. However, simple precautions such as not carrying the phone in a breast pocket over the ICD and holding it to the ear that is farthest from the ICD minimize the risk.

Abbott has put special filters in their ICDs to prevent cell phone interference.

Will an iPod™ music player or other portable multimedia player interfere with my CRT device?

There is no indication that compact multimedia players, such as an iPod™ mobile digital device or MP3 players, interfere with the normal function of an Abbott device.

When can I resume physical activities?

Your doctor will let you know when it is safe for you to resume activities. It is important that you avoid bumping or hitting the area around your implant, so contact sports, like football, may not be a good idea because you may damage the device or leads. Your energy level may increase after you receive your device, and many people find they are able to do more physically than they were before because their symptoms have improved.

Can I participate in strenuous activities like hiking, skiing or jogging?

It is always best to discuss your plans with your doctor. He or she can advise you as to your limits or signs that you might be engaging in activities that are too strenuous. If you participate in a particular activity that affects your chest or arm (swimming or golf for example), you mig ht want to discuss this with your doctor before receiving your device. It may affect how the device is selected and where and how it is implanted.

Is it safe to engage in sexual activity?

Other than a brief stay in the hospital and a short recovery period, receiving an implantable device typically does not have any adverse effect on a patient's sex life. It is important though, to follow your doctor's advice as to when to resume any physical activity.

Will I be able to drive?

Talk to your doctor about driving. Remember that while your ICD will stop a fast rhythm, it may not be able to prevent symptoms associated with that rhythm (dizziness, fainting) from happening. It is best to discuss driving with your physician before you resume driving.

Can I undergo Magnetic Resonance Imaging (MRI) with my device?

Certain device and lead combinations are labeled as MR Conditional. To learn more and to see if your device can undergo MRI scans, please reference mri.merlin.net and use the convenient drop-down menus with the information listed on your patient ID card. If you have additional questions or concerns please ask your physician for more information.

When can I travel again?

Your physician is your best resource for the answer to this question. However, many ICD patients find that with some extra planning and care, they can enjoy touring to many locations. It is always wise to plan your route carefully and give a copy of your itinerary to a loved one, just in case you encounter difficulties while traveling.

Will airport security interfere with my device?

Though many patients worry about airport security systems, there is really no need for concern. It is true that airport security has been tightened, but this does not place an added burden on you in terms of your implanted device.

The best thing to do when you reach airport security is to walk through the metal detector at a normal pace. If the alarm sounds (it may or may not), it only means that the system detected the metal in your device.

Simply show your patient identification card and ask for a hand pat-down search.

Security personnel may perform a search with a handheld wand. If so, it is important to tell them that the search should be done quickly and that they should avoid holding the wand over your implanted device more than a second.

What else should I know about traveling with an implantable device?

Remember that, while traveling, it is important to carry with you important medical information, such as medication names and dosages, your physician's name and phone number and how to care for you in an emergency.

You should also ask your physician for a copy of the final printout from the programmer associated with the testing results and settings at the most recent evaluation. If you are going to a Spanish, French or German speaking country, your physician might also be able to give you a printout in the language of the country you will visit. (Printouts in Italian, Japanese and Chinese may also be available for some devices.) Carry with you enough medications, and have a supply in your carryon luggage and your suitcase when traveling by train or plane.

Lastly, alert any travel personnel to special dietary needs you might have, and exercise good eating habits while on the road.

Will I still need to take medication once I have an ICD?

This is a question for your doctor. Usually, having an implantable device does not replace medication. Instead, medication and implantable devices work together. But your doctor may change your dosage.

Will I have any diet restrictions?

For overall heart health, doctors recommend following a diet that is low in sodium, fat and sugar and high in fiber and carbohydrates.

I am feeling better physically, but sometimes I feel worried or sad. Is there anything I can do?

Health is not just physical. Many patients experience stressful feelings after a device has been implanted. There are many coping strategies, including focusing on vibrant activities, staying close to loved ones and getting enough rest.

Living with a cardiac issue can be disconcerting. But, an implantable device is designed to offer you some comfort. It is there to back you up. If you are experiencing feelings of anxiety or depression, discuss this with your physician.

Many hospitals have patient support groups that meet regularly to learn about device therapy, heart disease and so on. It is not unusual for patients — particularly right after surgery — to be nervous or apprehensive about the device. These groups can offer insight and support as you become used to your new lifestyle. They will also help you meet other patients. Ask your doctor about local patient support groups.

IMPORTANT INFORMATION

Implantable device manufacturer:

Device make and model number:

Implanting physician:

Implanting physician phone number:

Implantation date:

Hospital where implant was performed:

Attending physician:

Attending physician phone number:

Medications name and dosage:

Travel checklist:

Patient ID card:

Printout of device settings:

Medications:

ADDITIONAL NOTES AND QUESTIONS:

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One St. Jude Medical Dr., St. Paul, MN 55117 USA, Tel: 1.651.756.2000
ArrhythmiaAnswers.com
St. Jude Medical is now Abbott.

Note: This pamphlet is not intended to take the place of the manufacturer's patient manual provided with each device.

Rx Only
Indications: The devices are intended to provide ventricular antitachycardia pacing and ventricular defibrillation for automated treatment of life-threatening ventricular arrhythmias.

Contraindications: Contraindications for use of the pulse generator system include ventricular tachyarrhythmias resulting from transient or correctable factors such as drug toxicity, electrolyte imbalance or acute myocardial infarction.

Adverse Events: Implantation of the pulse generator system, like that of any other device, involves risks, some possibly life-threatening. These include but are not limited to the following: acute hemorrhage/bleeding, air emboli, arrhythmia acceleration, cardiac or venous perforation, cardiogenic shock, cyst formation, erosion, exacerbation of heart failure, extrusion, fibrotic tissue growth, fluid accumulation, hematoma formation, histotoxic reactions, infection, keloid formation, myocardial irritability, nerve damage, pneumothorax, thromboemboli, venous occlusion. Other possible adverse effects include mortality due to: component failure, device-programmer communication failure, lead abrasion, lead dislodgment or poor lead placement, lead fracture, inability to defibrillate, inhibited therapy for a ventricular tachycardia, interruption of function due to electrical or magnetic interference, shunting of energy from defibrillation paddles, system failure due to ionising radiation. Other possible adverse effects include mortality due to inappropriate delivery of therapy caused by: multiple counting of cardiac events including T waves, P waves or supplemental pacemaker stimuli. Among the psychological effects of device implantation are imagined pulsing, dependency, fear of inappropriate pulsing and fear of losing pulse capability.

Refer to the User's Manual for detailed indications, contraindications, warnings, precautions and potential adverse events.

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