

Date: September 9, 2010

From: (b) (6)

Subject: P980023-S038
Linux Smart Steroid-Eluting Dual-Coil ICD Lead family
Biotronik, Inc.

Contact: (b) (6)

To: The Record

BACKGROUND/ REASON FOR SUPPLEMENT

In January 2006 and January 2009, FDA approved the Linux SD dual coil, active-fixation, endocardial ICD leads for commercial distribution through PMA P980023/S20 and P980023/S37, respectively. Linux TD, the passive-fixation version, was added to the Linux ICD lead family with FDA approval on July 11, 2006 (P980023/S23).

This PMA Supplement intends to introduce a modified ICD lead design – designated as Linux^{smart} (referred to here as Linux smart) – that uses many of the same components as the Linux ICD leads. The Linux smart ICD leads (Linux smart SD and Linux smart TD) are modifications to the firm's legally marketed Linux SD active fixation lead and Linux TD passive fixation lead, respectively. The designs are identical to that of the legally marketed Linux ICD leads, with the following exceptions:

1. Silglide surface treatment of the silicone lead body
2. Modifications to the lead body at the DF-1 connector exit
3. Additional supplier for silicone
4. Additional supplier for conductors
5. Additional supplier for shock coil materials

INDICATIONS FOR USE

No change

DEVICE DESCRIPTION

LINIX SMART SD LEAD

The Linux smart SD ICD lead is an active fixation, steroid-eluting, quadropolar lead for use with implantable cardioverter defibrillators (ICDs). Linux smart SD retains most of the technical properties of its predecessor, Linux SD. Figure 1 provides a photograph of the entire lead. The lead has two ventricular sensing/pacing electrodes (tip and ring) and two defibrillation/cardioversion shock coils designed to be located in the apex of the right ventricle (RV) and in the superior vena cava (SVC). The tip and ring electrodes form the most distal portion of the lead and provide dedicated bipolar sensing and pacing in the right ventricle. Linux smart SD uses an extendable/retractable fixation helix controlled by an external fixation tool. The fixation helix is comprised of 70% Platinum/30% Iridium alloy with a fractal Iridium surface structure.



Figure 1: Linux smart SD Lead

The tip and ring electrodes are composed of Platinum Iridium (90% Pt / 10% Ir) alloy with a fractal iridium surface structure. The shock coils are made of tantalum with a platinum/iridium surface. The Linux smart SD has one IS-1 bipolar sensing and pacing lead connector and two DF-1 defibrillation lead connectors. See Figure 2 for a photograph of the IS-1/DF-1 connectors and trifurcation. Both the right ventricular and SVC shock coils have a flat wire profile, are not coated with fractal iridium, and are contacted only at one end (distal at RV, proximal at SVC).

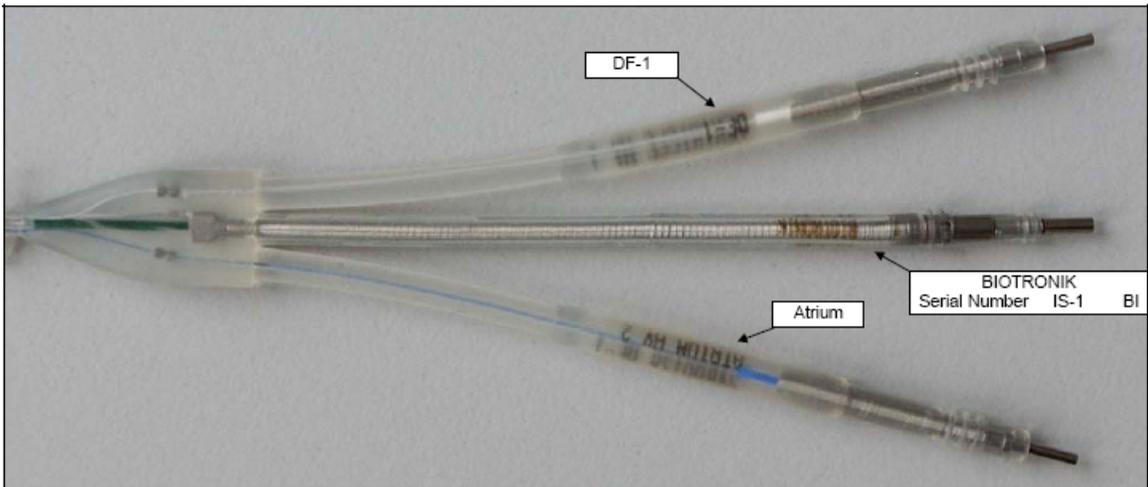


Figure 2: Linux smart SD IS-1 / DF-1 Connectors and Trifurcation

The Linux smart SD includes a steroid-eluting collar at the distal end (tip electrode), which elutes dexamethasone acetate (DXA) to the surrounding tissue after implantation. This steroid collar nominally contains 8 mg of dexamethasone acetate that is prepared with a carrier of liquid silicone rubber (b) (4) manufactured by (b) (4). The steroid collar used

in Linx smart SD leads is identical to the collars used in Linx SD (P980023/S20 and P980023/S37), Kentrox SL-S Steroid (P980023/S13) and Selox SR (P950037/S34).

The lead is available in three lengths (61, 65, and 75 cm), with two different distances (16 cm and 18 cm) between the proximal coil and the tip electrode. The four variants are:

- Linx smart SD 60/16
- Linx smart SD 65/16
- Linx smart SD 65/18
- Linx smart SD 75/18

LINX SMART TD LEAD

The Linx smart TD lead is similar to the Linx smart SD, with the exception of the fixation method, and it retains most of the technical properties of its predecessor, Linx TD (P980023/S23). The Linx smart TD ICD lead is a passive fixation, steroid-eluting, quadropolar lead for use with implantable cardioverter defibrillators (ICDs). The lead is designed to be anchored in the right ventricle using four silicone tines. Figure 3 provides a photograph of the distal fixation tines.



Figure 3: Distal End of Linx smart TD Lead

The Linx smart TD includes a steroid-eluting collar at the distal end (tip electrode), which elutes dexamethasone acetate (DXA). This steroid collar nominally contains only (b) (4) mg of dexamethasone acetate that is prepared with a carrier of liquid silicone rubber (b) (4) manufactured by (b) (4). The steroid collar used in Linx smart TD leads is identical to the collars used in Linx TD (P980023/S23) and Kentrox SL Steroid (P980023/S18)

There are two length variants of the Linx smart TD Lead (65 cm and 75 cm), and the 65 cm variant is available with two different distances (16 cm and 18 cm) between the lead tip and the SVC shock coil. The three product variants are as follows:

- Linx smart TD 65/16
- Linx smart TD 65/18
- Linx smart TD 75/18

Description of Changes

1. Silglide

Silglide is intended to improve the lubricious qualities of the lead body and enhance implantation of the Linx smart lead. It is intended to facilitate insertion, help reduce body surface friction, and reduce the chance of inadvertently moving one lead during manipulation of another.

Silglide will be applied to the lead body starting at the trifurcation junction and ending at the RV shock coil; the silicone body between the two shock coils will also be treated with Silglide™. It

will not be applied at the distal end of the lead (distal of the RV Shock coil) or at the connector insulation proximal to the trifurcation junction.

Silglide is a surface enhancement that treats the silicone tubing of the lead using a vacuum plasma polymerization deposition process prior to assembling the lead. Plasma polymerization uses plasma sources to generate a gas discharge that provides energy to activate or fragment a gaseous monomer in order to initiate polymerization.

The gaseous monomer used for the Silglide™ surface treatment is tetramethyldisiloxane (TMDSO). The Silglide process utilizes radio frequency energy to polymerize silicone tetramethyldisiloxane monomeric vapors onto the surface of the underlying silicone rubber components. It occurs at room temperature and involves no use of solvents or catalysts.

FDA's concerns with this modification are best summarized in the following communication with Biotronik early in the review process:

One of the modifications comprising the proposed Linux lead is the addition of Silglide coating. FDA wishes to better understand the meaning and clinical impact of "increase lubricity" and "improved handling" to help determine that you have provided the right kind and depth of supportive data to show safety and a benefit for this coating. To help FDA please provide the following:

- *State in detail how Silglide benefits the implantation of the proposed lead. Please specify the benefit and clarify whether it primarily affects physician preference or a quantifiable aspect of implant success (such as reduced dislodgements or reduced poor electrical performance or both).*
- *State whether Silglide benefits implantation of single lead systems, dual lead systems or both.*
- *Clarify whether the benefit of Silglide applies to all implants or only those implants employing specific techniques (such as introduction of two leads through a single venipuncture).*
- *Please justify the kind and amount of supportive data you believe is necessary to show the clinically relevant benefit of Silglide to justify adding the coating relative to an uncoated lead.*
- *Please address whether adding Silglide may introduce unintended challenges to implanting leads, such as increased tendency to forcefully advance leads (and cause puncture) or difficulty stabilizing leads using conventional anchor and suture techniques.*
- *To address these concerns please provide any necessary bench or animal testing data that you believe is relevant.*

The firm provided adequate animal and simulated use testing. They are reviewed in the appropriate areas of this memo below.

The firm indicated in the amendment that the samples arrive at Biotronik after going through the vacuum plasma polymerization deposition process to apply the Silglide surface treatment. The tubing is then shipped to Biotronik where it is inspected and verified. The firm included the specifications for incoming acceptance for silicone rubber tubing with Silglide coating. In addition, the leads are then verified and validated after manufacture with the Silglide treatment. Data collected and included in the original submission indicates positive testing of the mechanical properties and long-term invitro testing of the leads. The information provided by the firm appears adequate to demonstrate that the appropriate validation/verification activities were performed on the final lead design.

The firm states the silicone tubing is purchased from a vendor and immediately sent to a supplier that applies the Silglide surface treatment. The firm provides a copy of the purchase specification in Appendix 4. The specification requires that the treated tubing meets the same mechanical specifications as the base material. A list of specifications including tensile load, elongation, tear, and particulate are included.

The firm documents that verification/validation testing is performed with finished leads with Silglide coating and all leads passed. The firm documents their purchase agreement with the supplier of coated tubing. The specification in Appendix 4 states that the coated substrate will meet the specification of the base material for tensile strength and elongation. Additional specification for tear strength and visual defects are provided. The firm does not document the testing performed to qualify the vendor but presumably it is done as part of the quality system process.

FDA Consensus:

The firm has documented verification and validation testing to assure the finished lead meets its specification. The information is adequate.

2. DF-1 Connector Exit

The silicone lead body that is distal to the DF-1 connector (between the DF-1 connector and the junction) has been modified with a new diameter. It is intended to give a smoother curve and to improve the strength of the modified section of the lead.

The outer diameter of the silicone lead body distal to the DF-1 connector will increase from 2.35 mm (Linux SD/TD) to 3.1 mm (Linux smart SD/TD). The diameter of 3.1 mm has been used with the lead body of the Kentrox SL-S Steroid ICD leads (P980023/S17).

This area of tubing is formed by injection molding for the Linux smart SD/TD leads, whereas the Linux SD/TD tubing is formed by extrusion. The following materials will be used:

- (b) (4) - used with Linux SD/TD
- (b) (4) - which is discussed in Section 3 (below)

A drawing of the modified DF-1 connector is provided in Figure 4, with the modified parts shown in blue.

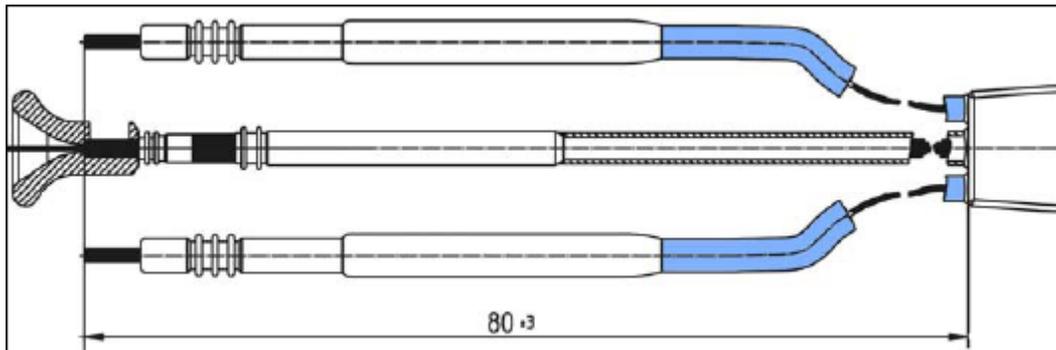


Figure 4: DF-1 Connector Modification

The firm states that this is not a corrective action but rather a quality improvement. There are no field reports of insulation failures with the original or new current design. The new design (insulation thickness) is that same as market approved Kentrox. Abrasion testing shows 10 x improvements. Proper flex testing for DF-1 connectors was performed on the new design. The response is acceptable.

3. Silicone Supplier, Cable Conductor Supplier, and Shock Coil Materials Supplier

The silicone used for IS-1 and DF-1 connector bodies and injection molded parts (sleeves, trifurcation) is currently supplied by (b) (4) (b) (4). The gaps between the shock coil windings are currently filled with silicone supplied by (b) (4) (b) (4).

(b) (4)). Instead, the new Linx smart will use (b) (4) as an additional supplier for the silicone (b) (4) and (b) (4), respectively). The material properties are unchanged and BIOTRONIK will utilize the same purchase specifications for the silicone provided by both suppliers. The silicone materials are not used as an adhesive and do not come in contact with the drug component.

The cable conductor materials are currently supplied by (b) (4). The Linx smart lead will use (b) (4) as an additional supplier for the conductors. The material properties are unchanged and Biotronik will utilize the same purchase specifications for the conductor provided by both suppliers.

The shock coil materials are currently supplied by (b) (4). The Linx smart leads will use (b) (4) as an additional supplier for the materials. The material properties are unchanged and Biotronik will utilize the same purchase specifications for the shock coil provided by both suppliers.

Biotronik provided their protocol GPA-111-009, *Business Procedure for Productive Material*, Appendix A of the amendment. The procedure details the requirements for controls placed on materials suppliers. It details the frequency of Supplier audits, both scheduled and unscheduled, as well as the requirements for audits of suppliers that provide critical components. The protocol also specifies the responsibilities and ownership for review and acceptance of technical aspects of supplier changes. The amendment also included protocol GPA-111-024, *Business Procedure for Incoming Goods and Supplier Management*. The protocol specifies the requirements for governing the receipt and suppliers of the silicone and cable conductor. The firm also provided the specific verification for the silicone tubing material (b) (4) with Silglide referenced in this amendment. The data provided by the firm and the protocol details provided are adequate.

BENCH TESTING

The following table summarizes Biotronik’s bench testing as cross-referenced with the guidance document “Guidance for the Submission of Research and Marketing Applications for Permanent Pacemaker Leads and for Pacemaker Lead Adaptor 510(k) Submissions.”

| FDA Guidance Test No. and Title | Biotronik Validation Report # | Appendix |
|--|--|------------------------|
| 1 Electrical continuity / DC Resistance | 111-09-0366; 111-09-0939 | 63; 80 |
| 2 Leakage Current | 111-09-0366; 111-09-0939 | 63; 80 |
| 3 Strength of Lead (bonds) | 111-09-0366; 111-09-0386; 111-09-0937; 111-09-0939 | 63; 62; 79; 80 |
| 4 Leak Proof (Isotonic Saline at 37°C) | Carried over from Linx SD/TD | |
| 5 Corrosion resistance of conductors | Carried over from Linx SD/TD | |
| 6 Stylet performance | 111-09-0386; 111-09-0937 | 62; 79 |
| 7 Fatigue test | 111-08-0895; 111-08-0896; 111-08-0897; 111-08-0917; 111-08-0918; 111-08-0919 | 64; 65; 66; 81; 82; 83 |
| 8 Connector testing to ISO 5841-3 (IS-1) | 111-08-0890; 111-08-0948; 111-08-0912; 111-08-0931 | 67; 68; 84; 85 |
| 9 Anchoring Sleeve Performance | 111-08-0894; 111-08-0951; 111-08-0916; 111-08-0934 | 69; 70; 86; 87 |
| 10 Lead tip pressure | 111-09-0389; 111-09-1027 | 61; 78 |
| 11 Active fixation functionality test | 111-09-0366; 111-09-0386 | 63; 62 |

DF-1 CONNECTOR EXIT TESTING

Fatigue testing and connector testing was performed in accordance with Section 23.5 of EN 45502-2-2:2008 (Attachment 4 original memo). They tested all sections of the lead including the modified DF-1 connector portion for both the SD and TD leads. Test 1 is applied to all uniform lead segments and Test 2 is applied to the segments where the lead joins the connector body. All procedures were performed according to the protocol and all test units passed.

Electrical validation tests data is given in Appendicis 63 and 80. After environmental preconditioning the leads were tested for: insulation integrity, shock test at 1000V, DC resistance, and visual inspection. The testing procedure is adequate and every device performed within the specifications set by Section 23.3 of EN 45502-2. Biotronik provided a justification for sample size selection in an Amendment to the original file.

A001 Review of Sample Size:

The firm provided a table of their Risk Analysis (RAN-111-162) to provide the justification for their sample size selection for Biocompatibility testing. The risk analysis was derived from the severity level of identified hazard. The RAN provided the details for mitigation measures enacted, the confidence level required to verify those measures, and the minimum sample size to assure the specified confidence level. The table also included the various runs for each verification test and the samples included in the run. The details provided indicate that the firm exceeded the required sample sizes for each of the verification runs. The response and details provided by the firm are adequate.

The firm documents their process for selecting sample size of mechanical/electrical testing based on a KKP approach which is a risk assessment that accounts for severity of failure and likelihood of occurrence. The firm shows that a sample size of 29 provides 90% confidence and 95% probability. The firm shows the number of required samples and number of samples used for mechanical testing in Table 5.

FDA Consensus:

The sample size information in Table 5 was reviewed. In all cases at least 29 samples are required and in many cases testing exceeds these sample sizes. The sample sizes for Mechanical/Electrical testing of the modified leads are considered acceptable.

SILGLIDE ADDITION

The Silglide coating becomes slippery when exposed to body fluids during implant and is said provide a lubricous coating that enhances implantation for a single lead or multiple leads passing by it. The Silglide is applied to the silicone tubing using a vacuum plasma polymerization deposition process prior to assembling the lead. The surface treatment has a thickness of 1 to 2 um and is said to leave the physical and chemical properties of the substrate silicone rubber tubing material unaltered.

Appendicis 57 and 76 provide data on the Silglide Adhesion tests which verified that the Silglide did not separate from the underlying silicone after tensile loading. Appendix 58 provided Adhesion/Chemical and Thermic tests which verified that the gliding property of the Silglide surface was not affected by exposure to adhesion or exposure to solvent.

Further review of the safety, effectiveness, and manufacturing process changes associated with the Silglide addition are provided below.

ANIMAL STUDIES

The modified leads were in-vivo tested for safety, implantation handling, acute and chronic electrical performance, and insulation integrity.

Biotronik used their own historical data as a control group for this study.

- Passive fixation Dual Shock Coil ICD Lead Linux TD Nonclinical Laboratory Study
- 8F active fixation Dual Shock Coil ICD Lead Linux SD Nonclinical Laboratory Study

Each of the 3 animals of both groups 1 and 2 were surgically implanted with a Linux TD smart 65/16 ICD lead or a Linux SD smart 65/16 ICD lead. Each was placed in the right heart (distal shock coil in the RV and proximal shock coil in the SVC). In addition a second active fixation bipolar lead – the Setrox S53 – was fixed in the right atrium to test the abrasion resistance of the insulation of both leads.

Ventricular and atrial pacing thresholds, signal amplitudes, pacing impedances, and defibrillation thresholds were within pre-specified limits during the implantation phase. Lead handling was free of any problems; no test housing or lead repositioning was needed. Both the atrial and ventricular leads of all dogs had acceptable lead performance parameters. No pacemaker failure was observed during the follow ups except in dog number 4 that had two dislodgements of the atrial lead. The dogs had no clinical signs of coagulopathy (hypo- or hyper coagulation), or of embolism to vital organs. No thrombus occurred on the surface of the new Linux Silglide lead body.

The defibrillation impedance values and defibrillation thresholds proved to be sufficient at all of the 6 explantations without lead or test housing repositioning. At necropsy no serious adverse event was shown on the epicardial or endocardial surface of the heart. No chronic thrombus formation was experienced, even on the surface of fibrotic endocardiac ingrowth or overgrowth around the Linux Silglide leads.

Information from the study was reviewed as stand-alone data as well as in conjunction with the bench testing. None of the data from the canine study raised new issues of safety, implantation handling, acute or chronic electrical performance, or insulation integrity.

BIOCOMPATIBILITY/MATERIALS

A GLP Animal study was conducted to demonstrate the biocompatibility, implantation handling, electrical performance and insulation integrity of the Silglide surface treated leads.

6 leads (3 SD and 3 TD) were implanted in 6 dogs. Follow up occurred at 3 days, 1 week, 2 weeks, 3 weeks, 1 month and monthly for up to 6 months. The time pacing impedance, pacing voltage thresholds, and atrial/ventricular sensitivities were measured. All pacing parameters were acceptable. In-vivo thromboresistance was also measured (appendix 50). Clinical hematology assessments (WBC, RBC, hematocrit, and hemoglobin) and an assessment of lesions as a result of implantation were conducted. There was no significant difference in clinical hematology between implantation and explantation. There were also no signs of thrombus formation. In vivo thrombogenicity testing is usually a 4 hr test in a non-heparinized model. Although these dogs were heparinized, they were also followed out to 6 months, so the data provided is sufficient.

The following tests were conducted on the final Linux^{smart} leads as well as both types of silicone from (b) (4) .:

- cytotoxicity
 - BCA staining for protein method was conducted on the leads
 - MEM elution assay was conducted on the silicone
- sensitization
 - Guinea pig maximization test
- intracutaneous reactivity
- material mediated pyrogenicity
- subchronic toxicity

- acute systemic toxicity
- genotoxicity
 - o Ames test
 - o mouse lymphoma
 - o mouse micronucleus
- implantation in rabbit 14 days
- implantation in rabbit 90 days
- implantation in rabbit 180 days
- hemolysis

A table summarizing the biocompatibility testing is presented on pages 27-60 of the submission. The testing was conducted according to ISO 10993 guidelines. Testing was done on final sterilized products. The extraction time and surface area to volume ratio used for extraction were appropriate for each test. Both polar and non-polar solvents were used when appropriate. The positive and negative controls used all behaved appropriately. All tests met the specifications set out in ISO 10993.

Cytotoxicity testing on the SD and TD leads was done separately. In addition, complement activation testing was conducted on the leads. A Silglide adhesion test was conducted (appendix 57, 76). This test involved a visual inspection and inspection by EDX/REM. The tubing samples were stretched to 300 mm, held for 4 seconds and then relaxed. This was repeated 5 times. The surface microstructure remained intact and no cracks larger than 2 micrometers were present. The coating did not peel off.

Appendix 58 contains information on the surface properties and gliding properties of the device after long term exposure of 500 hours and 2000 hours to saline solution at 37°C. The chemical resistance of the surface was tested and passed.

The biocompatibility reviewer has no remaining questions or concerns. I agree with her assessment and believe the information is adequate.

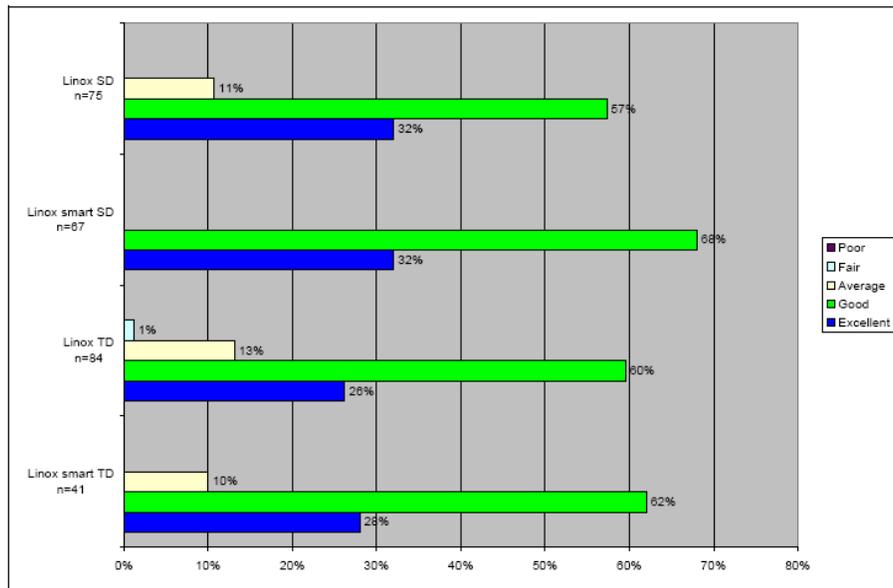
CLINICAL DATA

CLINICAL REVIEW COMMENTS

- I did not review the bench testing on an engineering level to ascertain that forces of pushing and retraction were reduced to the extent claimed to provide FDA concurrence. A separate mechanical engineering review concluded that the testing was appropriate and sufficient. If the observed magnitude were actually about 30% I would interpret that as clinically relevant and somewhat different and slipperier, as a rough clinical estimate.
- I reviewed the 17 physician comments. Remember, the firm asked the implanters – in general – “how the more lubricious leads may be easier to implant or manipulate”. 17 of 25 polled physicians responded.
 - o Responses touched on two main themes: potential for benefit – and doubt that there is an actual benefit.
 - o Physicians cited the following potential benefits:
 - potentially easier placement with Silglide if the sheath is retained until after final lead positioning
 - potentially less perforation due to less pushing
 - most potential to help when placing multiple leads, including potentially less dislodgement of the adjacent lead
 - potential to help place leads into narrow access areas, like near the clavicle or in smaller patients
 - potentially less trauma to tissue
- The firm also provided a comparison (see updated graph below, sent by e-mail 9/15/2010 by Jon Brumbaugh of Biotronik) showing the proportion of handling ratings (“good” + “excellent” are representative, and shown below) for lead handling

- for leads ***WITH Silglide***
 - Linux SMART TD: 62% + 28% (n=41) and
 - Linux SMART SD: 68% + 32% (n=67)
- for leads ***withOUT Silglide***
 - Linux TD: 60% + 26% (n=84) and
 - Linux SD: 57% + 32% (n=75)

Linux^{smart} TD/SD and Linux TD/SD Corrected Charts



Full review of the clinical portions of the submission shows that the firm has now fully addressed FDA’s concerns. The firm now provides reasonable assurance of safety and effectiveness of added Silglide coating for this RV ICD lead.

- The firm provides three kinds of data, which, in combination, are compelling to adequately support approval of added Silglide “slipperiness” coating. The three kinds of data are:
1. bench push/pull testing shows about a 30% reduction in required forces to move the lead
 2. physician impressions suggest that for some implanters there may be a benefit of the slipperiness (see particular potential benefits above)
 3. overall handling of the new coated lead is perhaps better according to handling assessments including assessment of leads with Silglide and without. There is no suggestion that the addition of Silglide is associated with new safety concerns or worse handling.

We have no further questions or concerns.

STERILIZATION/SHELF LIFE/PACKAGING

Linux smart leads are sterilized with Ethylene Oxide (EtO) gas to achieve a sterility assurance level (SAL) of 1x10⁻⁶. The environmental controls, sterilization process, and sterility assurance procedures for the Linux smart leads are identical to those used for Linux SD (P980023/S20) and Linux TD (P980023/S23) and accessories.

The shelf-life for the Linux smart leads is 24 months which is the same as the Linux SD and TD leads. Shelf life testing, including accelerated storage equivalent to 2 year, met specifications. Given the similarity in use to the Linux SD and TD leads I believe that the accelerated testing is

adequate. The Linux smart leads can be stored at a maximum temperature of 50°C for only one month. Otherwise, the recommended storage temperature is 5°C to 25°C. Additionally, the stability of the steroid has been verified by Guidant as documented in VER-111-02-2747 in PMA Supplement P950037/S34 (dated March 8, 2004). (b) (6) has also commented on shelf-life information in his review and did not raise any concerns. The information provided is adequate.

Linux smart leads, as well as all other BIOTRONIK pulse generators, leads and accessories, are sealed within a double sterile blister package consisting of PETG copolyester 6763 (Eastman Chemical). There is a silicone part in the inner blister that secures the distal end of the lead in place while transporting. The blister packs are sealed with Tyvek covering (Perfecseal). The Tyvek pores are permeable to sterilization gas and water vapor, but are impermeable to bacteria.

Standard positioning stylets and other accessories are also contained within the inner PETG blister package. The inner blister contains a ring made of Polyethylene (HD-PE) that holds the stylets within the inner blister.

The packaging for Linux smart is identical to that approved for P950037/S44 dated February 15, 2007. These sterile packaging materials fulfill the requirements of a non-toxic reaction with the enclosed products, as well as compatibility with the ethylene oxide sterilization process.

Stylets are also available as separately packaged accessories. Each separately packaged stylet is provided within a Stericlin bag. These bags have a clear PE/PET (polyethylene/polyethylene terephthalate) plastic front, sealed with a medical paper backing, which is then sterilized by exposure to Ethylene Oxide gas (EtO).

The firm has not provided any validation testing specific to packaging. Since they have made no changes to packaging materials or processes I believe the information provided is adequate and have no questions or concerns.

LABELING

The Technical Manual for the Linux smart lead is provided in Appendix 88. This technical manual is based on the Linux technical manual with the changes that are summarized below:

- The lead name was changed to Linux smart through the manual.
- The package content and accessory list was updated for the Linux smart.
- The technical data was updated with Linux smart lead data.

BIOTRONIK will include the technical manual on the Internet, per Section 206 of the Medical Device User Fee and Modernization Act (MDUFMA) Electronic Labeling for Prescription Devices Intended for Use in Health Care Facilities - #G03-1. Therefore, in lieu of the technical manual, an Electronic Manuals insert, which is provided in Appendix 89, will be included in the product packaging to inform users of the website for the technical manual.

I have reviewed the new package labeling as well as the changes to the technical manual and have no questions or concerns. The information provided is adequate.

CONCLUSION

The sponsor has adequately addressed all modifications in this file. The review team has no remaining questions or concerns.

RECOMMENDATION - I recommend that the supplement be **Approved**.

(b) (6) _____, Reviewer Date

_____, Mitchell Shein, Chief PDLB Date