DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

OCT 29 2004

Ms. Karen Uyesugi
Vice President, RA/CA/QA
Endologix, Inc.
13900 Alton Parkway, Suite 122
Irvine, Ca 92618

Re: P040002
Endologix PowerLink® System
Bifurcated Infrarenal Stent Grafts: 25-16-135BL, 25-16-155BL, 25-16-140BL, 28-16-135BL, 28-16-155BL, 28-16-140BL
Limb Extension Model Numbers: 16-16-55L, 16-16-88L, 20-20-55L
Proximal Cuff Model Numbers: 25-25-55L, 25-25-75L, 28-28-55L, 28-28-75L
Filed: January 8, 2004
Amended: March 5, April 9, June 21 and October 19, 2004
Procode: MIH

Dear Ms. Uyesugi:

The Center for Devices and Radiological Health (CDRH) of the Food and Drug Administration (FDA) has completed its review of your premarket approval application (PMA) for the Endologix PowerLink® System. The Powerlink System bifurcated models and proximal cuff and limb extension accessories are indicated for endovascular treatment in patients with AAA. The Endologix PowerLink System is indicated for patients with suitable aneurysm morphology for endovascular repair, including:

Adequate iliac/femoral access compatible with the required delivery systems (a diameter of $\geq$ 7 mm)

Non-aneurysmal aortic neck between the renal arteries and the aneurysm:

with a length of $\geq$ 15 mm

with a diameter of $\geq$ 18 mm and $\leq$ 26 mm (main body)

with a neck angle of $\leq 60°$ to the body of the aneurysm.

Aortic length $\geq$ 1.0 cm longer than the body portion of the chosen bifurcated model.

Common iliac artery distal fixation site:

with a distal fixation length of ≥ 15 mm

with ability to preserve at least one hypogastric artery

with a diameter of ≥ 10 mm and ≤ 14 mm (limbs)

with an iliac angle of ≤ 90° to the aortic bifurcation.

The proximal cuff is used to treat intraoperative or late proximal Type I endoleaks or to extend the length of the main body of a bifurcated device to fit specific patient anatomy. It is indicated for patients with suitable aneurysm morphology for endovascular repair, including:

Adequate iliac/femoral access compatible with the required delivery systems (a diameter of ≥ 7 mm)

Non-aneurysmal aortic neck between the renal arteries and the aneurysm:

with a diameter of ≥ 18 mm and ≤ 26 mm

with a neck angle of ≤ 60° to the body of the aneurysm.

Ability to overlap the bifurcated stent graft by 15 to 20 mm.

The Limb Extension is used to treat intraoperative or late distal Type I endoleaks or to extend the length of the limbs of a bifurcated device to fit specific patient anatomy. It is indicated for patients with suitable aneurysm morphology for endovascular repair, including:

Adequate iliac/femoral access compatible with the required delivery systems (a diameter of ≥ 7 mm)

Common iliac artery distal fixation site:

with ability to preserve at least one hypogastric artery

with a diameter of ≥ 10 mm and ≤ 18 mm

with an iliac angle of ≤ 90° to the aortic bifurcation.

Ability to overlap the bifurcated stent graft by 15 to 20 mm.

We are pleased to inform you that the PMA is approved. You may begin commercial distribution of the device in accordance with the conditions described below and in the "Conditions of Approval" (enclosed).

The sale, distribution, and use of this device are restricted to prescription use in accordance with 21 CFR 801.109 within the meaning of section 520(e) of the Federal Food, Drug, and Cosmetic Act (the act) under the authority of section 515(d)(1)(B)(ii) of the act. FDA has also determined that, to ensure the safe and effective use of the device, the device is further restricted within the meaning of section 520(e) under the authority of section 515(d)(1)(B)(ii), (1) insofar as the labeling specify the requirements that apply to the training of practitioners who may use the

labeling specify the requirements that apply to the training of practitioners who may use the device as approved in this order and (2) insofar as the sale, distribution, and use must not violate sections 502(q) and (r) of the act.

In addition to the postapproval requirements outlined in the enclosure, you have agreed to the following conditions of approval:

1. You have agreed to perform a clinical update to physician users at least annually. The information contained in this update will be provided to the FDA via the PMA Annual Report. At a minimum, this update will include for your pivotal study cohort a summary of the number of patients for whom data are available, with the rates of aneurysm rupture, conversion to surgical repair, aneurysm related death, all-cause mortality, endoleak, aneurysm enlargement, prosthesis migration and patency. Reports of losses of device integrity and reasons for conversion are to be described. A summary of any explant analysis findings are to be included. Additional relevant information from commercial experience within and outside of the US will also be included.

2. You have agreed to perform a long-term follow-up study. The goals of this follow-up study are to evaluate the longer-term safety and effectiveness of the PowerLink® System through five years of implantation. This study is expected to include all surviving endovascular patients from the original pivotal study cohort. Patients will be followed under the approved clinical protocol. At each annual visit a contrast enhanced CT scan, abdominal x-ray and physical examination will be conducted. Clinical data will be recorded on the corresponding case report forms (CRFs) that were used during the clinical trial. Diagnostic films on patients in this cohort will continue to be evaluated by the core laboratory. All data will be monitored, entered into a database, analyzed and submitted in annual reports to the FDA and a final report will be submitted after completion of the follow-up and analysis. This follow-up proposal will allow an evaluation of adverse events, implant effectiveness, incidence of perigraft flow, aneurysm enlargement and aneurysm rupture over time. Please provide a PMA supplement with the full protocol for the post-approval study within 45 days of receipt of this letter.

3. You have agreed to implement a training program, as outlined in the PMA. Your annual reports to your PMA will include evaluations of the adequacy of this program based on 30 day death, rupture, failure to implant and serious adverse event rates for a minimum of the first 10 patients treated by each clinician. The 30 day results from you pivotal study should serve as a comparison for your evaluation. Should modifications be necessary to the training program, you will describe and justify each modification within the annual reports.

Expiration dating for this device has been established and approved at three years.

CDRH does not evaluate information related to contract liability warranties, however you should be aware that any such warranty statements must be truthful, accurate, and not misleading, and must be consistent with applicable Federal and State laws.

CDRH will notify the public of its decision to approve your PMA by making available a summary of the safety and effectiveness data upon which the approval is based. The information can be found on the FDA CDRH Internet HomePage located at http://www.fda.gov/cdrh/pmapage.html. Written requests for this information can also be made to the Dockets Management Branch, (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852. The written request should include the PMA number or docket number. Within 30 days from the date that this information is placed on the Internet, any interested person may seek review of this decision by requesting an opportunity for administrative review, either through a hearing or review by an independent advisory committee, under section 515(g) of the Federal Food, Drug, and Cosmetic Act (the act).

Failure to comply with the conditions of approval invalidates this approval order. Commercial distribution of a device that is not in compliance with these conditions is a violation of the act.

You are reminded that, as soon as possible and before commercial distribution of your device, you must submit an amendment to this PMA submission with copies of all approved labeling in final printed form. The labeling will not routinely be reviewed by FDA staff when PMA applicants include with their submission of the final printed labeling a cover letter stating that the final printed labeling is identical to the labeling approved in draft form. If the final printed labeling is not identical, any changes from the final draft labeling should be highlighted and explained in the amendment.

All required documents should be submitted in triplicate, unless otherwise specified, to the address below and should reference the above PMA number to facilitate processing.

PMA Document Mail Center (HFZ-401)
Center for Devices and Radiological Health
Food and Drug Administration
9200 Corporate Boulevard
Rockville, Maryland 20850

If you have any questions concerning this approval order, please contact Nels Anderson at (301) 443-8262, extension 171.

Sincerely yours,

Donna R. Vochnes

Bram D. Zuckerman, M.D.
Director
Division of Cardiovascular Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosure

Last Modified: 1-31-02

CONDITIONS OF APPROVAL

PREMARKET APPROVAL APPLICATION (PMA) SUPPLEMENT. Before making any change affecting the safety or effectiveness of the device, submit a PMA supplement for review and approval by FDA unless the change is of a type for which a "Special PMA Supplement-Changes Being Effected" is permitted under 21 CFR 814.39(d) or an alternate submission is permitted in accordance with 21 CFR 814.39(e) or (f). A PMA supplement or alternate submission shall comply with applicable requirements under 21 CFR 814.39 of the final rule for Premarket Approval of Medical Devices.

All situations that require a PMA supplement cannot be briefly summarized; therefore, please consult the PMA regulation for further guidance. The guidance provided below is only for several key instances.

A PMA supplement must be submitted when unanticipated adverse effects, increases in the incidence of anticipated adverse effects, or device failures necessitate a labeling, manufacturing, or device modification.

A PMA supplement must be submitted if the device is to be modified and the modified device should be subjected to animal or laboratory or clinical testing designed to determine if the modified device remains safe and effective.

A "Special PMA Supplement - Changes Being Effected" is limited to the labeling, quality control and manufacturing process changes specified under 21 CFR 814.39(d)(2). It allows for the addition of, but not the replacement of previously approved, quality control specifications and test methods. These changes may be implemented before FDA approval upon acknowledgment by FDA that the submission is being processed as a "Special PMA Supplement - Changes Being Effected." This procedure is not applicable to changes in device design, composition, specifications, circuitry, software or energy source.

Alternate submissions permitted under 21 CFR 814.39(e) apply to changes that otherwise require approval of a PMA supplement before implementation of the change and include the use of a 30-day PMA supplement or annual postapproval report (see below). FDA must have previously indicated in an advisory opinion to the affected industry or in correspondence with the applicant that the alternate submission is permitted for the change. Before such can occur, FDA and the PMA applicant(s) involved must agree upon any needed testing protocol, test results, reporting format, information to be reported, and the alternate submission to be used.

Alternate submissions permitted under 21 CFR 814.39(f) for manufacturing process changes include the use of a 30-day Notice. The manufacturer may distribute the device 30 days after the date on which the FDA receives the 30-day Notice, unless the FDA notifies the applicant within 30 days from receipt of the notice that the notice is not adequate.

POSTAPPROVAL REPORTS. Continued approval of this PMA is contingent upon the submission of postapproval reports required under 21 CFR 814.84 at intervals of 1 year from the date of approval of the original PMA. Postapproval reports for supplements approved under the original PMA, if applicable, are to be included in the next and subsequent annual reports for the original PMA unless specified otherwise in the approval order for the PMA supplement. Two copies identified as "Annual Report" and bearing the applicable PMA reference number are to be submitted to the PMA Document Mail Center (HFZ-401), Center for Devices and Radiological Health, Food and Drug Administration, 9200 Corporate Blvd., Rockville, Maryland 20850. The postapproval report shall indicate the beginning and ending date of the period covered by the report and shall include the following information required by 21 CFR 814.84:

1. Identification of changes described in 21 CFR 814.39(a) and changes required to be reported to FDA under 21 CFR 814.39(b).

2. Bibliography and summary of the following information not previously submitted as part of the PMA and that is known to or reasonably should be known to the applicant:

   a. unpublished reports of data from any clinical investigations or nonclinical laboratory studies involving the device or related devices ("related" devices include devices which are the same or substantially similar to the applicant's device); and

   b. reports in the scientific literature concerning the device.

If, after reviewing the bibliography and summary, FDA concludes that agency review of one or more of the above reports is required, the applicant shall submit two copies of each identified report when so notified by FDA.

ADVERSE REACTION AND DEVICE DEFECT REPORTING. As provided by 21 CFR 814.82(a)(9), FDA has determined that in order to provide continued reasonable assurance of the safety and effectiveness of the device, the applicant shall submit 3 copies of a written report identified, as applicable, as an "Adverse Reaction Report" or "Device Defect Report" to the PMA Document Mail Center (HFZ-401), Center for Devices and Radiological Health, Food and Drug Administration, 9200 Corporate Blvd., Rockville, Maryland 20850 within 10 days after the applicant receives or has knowledge of information concerning:

1. A mix-up of the device or its labeling with another article.

2. Any adverse reaction, side effect, injury, toxicity, or sensitivity reaction that is attributable to the device and:

   a. has not been addressed by the device's labeling; or

   b. has been addressed by the device's labeling but is occurring with unexpected severity or frequency.

3. Any significant chemical, physical or other change or deterioration in the device, or any failure of the device to meet the specifications established in the approved PMA that could not cause or contribute to death or serious injury but are not correctable by adjustments or other maintenance procedures described in the approved labeling. The report shall include a discussion of the applicant's assessment of the change, deterioration or failure and any proposed or implemented corrective action by the applicant. When such events are correctable by adjustments or other maintenance procedures described in the approved labeling, all such events known to the applicant shall be included in the Annual Report described under "Postapproval Reports" above unless specified otherwise in the conditions of approval to this PMA. This postapproval report shall appropriately categorize these events and include the number of reported and otherwise known instances of each category during the reporting period. Additional information regarding the events discussed above shall be submitted by the applicant when determined by FDA to be necessary to provide continued reasonable assurance of the safety and effectiveness of the device for its intended use.

REPORTING UNDER THE MEDICAL DEVICE REPORTING (MDR) REGULATION.
The Medical Device Reporting (MDR) Regulation became effective on December 13, 1984. This regulation was replaced by the reporting requirements of the Safe Medical Devices Act of 1990 which became effective July 31, 1996 and requires that all manufacturers and importers of medical devices, including in vitro diagnostic devices, report to the FDA whenever they receive or otherwise become aware of information, from any source, that reasonably suggests that a device marketed by the manufacturer or importer:

1. May have caused or contributed to a death or serious injury; or

2. Has malfunctioned and such device or similar device marketed by the manufacturer or importer would be likely to cause or contribute to a death or serious injury if the malfunction were to recur.

The same events subject to reporting under the MDR Regulation may also be subject to the above "Adverse Reaction and Device Defect Reporting" requirements in the "Conditions of Approval" for this PMA. FDA has determined that such duplicative reporting is unnecessary. Whenever an event involving a device is subject to reporting under both the MDR Regulation and the "Conditions of Approval" for a PMA, the manufacturer shall submit the appropriate reports required by the MDR Regulation within the time frames as identified in 21 CFR 803.10(c) using FDA Form 3500A, i.e., 30 days after becoming aware of a reportable death, serious injury, or malfunction as described in 21 CFR 803.50 and 21 CFR 803.52 and 5 days after becoming aware that a reportable MDR event requires remedial action to prevent an unreasonable risk of substantial harm to the public health. The manufacturer is responsible for submitting a baseline report on FDA Form 3417 for a device when the device model is first reported under 21 CFR 803.50. This baseline report is to include the PMA reference number. Any written report and its envelope is to be specifically identified, e.g., "Manufacturer Report," "5-Day Report," "Baseline Report," etc.

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Any written report is to be submitted to:

Food and Drug Administration
Center for Devices and Radiological Health
Medical Device Reporting
PO Box 3002
Rockville, Maryland 20847-3002

Copies of the MDR Regulation (FOD # 336&1336) and FDA publications entitled "An Overview of the Medical Device Reporting Regulation" (FOD # 509) and "Medical Device Reporting for Manufacturers" (FOD #987) are available on the CDRH WWW Home Page. They are also available through CDRH's Fact-On-Demand (F-O-D) at 800-899-0381. Written requests for information can be made by sending a facsimile to CDRH's Division of Small Manufacturers International and Consumer Assistance (DSMICA) at 301-443-8818.


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