DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002

July 7, 2014

Ms. Linda D'Abate
Vice President, Global Clinical & Regulatory Affairs
Lombard Medical Technologies, Inc.
15420 Laguna Canyon Drive, Ste 260
Irvine, CA 92618

Re: P110032
Aorfix AAA Flexible Stent Graft System

Dear Ms. D'Abate:

The Center for Devices and Radiological Health (CDRH) of the Food and Drug Administration (FDA) completed its evaluation of your premarket approval application (PMA) and issued an approval order on February 14, 2013. Per our e-mail dated July 2, 2014, modifications to your conditions of approval were required to appropriately reflect that you will participate as a stakeholder in the Society for Vascular Surgery Patient Safety Organization governed Vascular Quality Initiative to provide surveillance on your device. The modified conditions of approval are as follows:

You have agreed to provide the following data as part of the annual report:

1. [Modified] You will provide a clinical update to physician users at least annually. At a minimum, this update will include, for your IDE study cohort, a summary of the number of patients for whom data are available, with the rates of aneurysm-related mortality, aneurysm rupture, secondary endovascular procedures, conversion to surgical repair, complications, endoleak, aneurysm enlargement, prosthesis migration, and patency. Reports of losses of device integrity, reasons for conversion, and causes of aneurysm-related death and rupture are to be described. A summary of any explant analysis findings is to be included. Additional relevant information from commercial experience within and outside of the U.S. is also to be included. The clinical updates for physician users and the information supporting the updates must be provided in the Annual Report.

2. [Modified] In addition to providing information regarding your clinical trial in your clinical updates to physician users, you will report any significant observations from the surveillance described below of the use of the Aorfix AAA Flexible Stent Graft System.

   In addition to the conditions outlined above, you are required to support and actively participate as a stakeholder in the Society for Vascular Surgery Patient Safety Organization governed Vascular Quality Initiative and undertake such activities to ensure

that surveillance occurs for the Aorfix AAA Flexible Stent Graft System in at least 234 patients.

This surveillance should monitor procedural information, including the number of devices used, procedural duration, blood loss, and postoperative leg or bowel ischemia. The surveillance should also monitor aneurysm-related mortality, device migration, fracture in the fixation zone, conversion to open surgery, change in aneurysm size, aneurysm rupture, graft patency, secondary interventions, change in renal function, and endoleaks (including Type) through 5 years post implant.

We hope that this error has not inconvenienced you. If you have any questions about this corrective action, please contact Nicole Ibrahim at (301) 796-5171 or Nicole.Ibrahim@fda.hhs.gov.

Sincerely yours,

Nicole G. Ibrahim -S

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

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Lombard Medical
c/o Juan Carlos Serna
Vice President
Health Policy Associates Inc.
690 Canton St. Suite 302
Westwood, MA 02090

February 14, 2013

Re: P110032
Aorfix AAA Flexible Stent Graft System
Filed: January 6, 2012
Amended: July 26, 2012; August 7, 2012; August 8, 2012; October 23, 2012; November 27, 2012
Procode: MIH

Dear Mr. Serna:

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 Aorfix AAA Flexible Stent Graft System. This device is indicated for the treatment of patients with abdominal aortic and aorto-iliac aneurysms having vascular morphology suitable for endovascular repair, including:

- Adequate iliac or femoral access that is compatible with vascular access techniques, implants, and accessories.
- Aortic neck landing zone diameters with a range of 19mm to 29mm.
- Non aneurysmal proximal neck center-line length of $\geq$ 15mm.
- Infrarenal aortic neck angulations including those up to and including 90°.
- Common iliac landing zone diameters with a range of 9mm to 19mm.
- Distal fixation length of $\geq$ 15mm.

You may begin commercial distribution of the device in accordance with the conditions of approval described below.

The sale and distribution of this device are restricted to prescription use in accordance with 21 CFR 801.109 and under section 515(d)(1)(B)(ii) of the Federal Food, Drug, and Cosmetic Act (the act). The device is further restricted under section 515(d)(1)(B)(ii) of the act insofar as the labeling must specify the specific training or experience practitioners need in order to use the device. FDA has determined that these restrictions on sale and distribution are necessary to provide reasonable assurance of the safety and effectiveness of the device. Your device is therefore a restricted device subject to the requirements in sections 502(q) and (r) of the act, in addition to the many other FDA

requirements governing the manufacture, distribution, and marketing of devices.

Expiration dating for this device has been established and approved at two years. This is to advise you that the protocol you used to establish this expiration dating is considered an approved protocol for the purpose of extending the expiration dating as provided by 21 CFR 814.39(a)(7).

Continued approval of this PMA is contingent upon the submission of periodic reports, required under 21 CFR 814.84, at intervals of one year (unless otherwise specified) from the date of approval of the original PMA. Two copies of this report, identified as "Annual Report" and bearing the applicable PMA reference number, should be submitted to the address below. The Annual Report should indicate the beginning and ending date of the period covered by the report and should include the information required by 21 CFR 814.84.

In addition to the above, and in order to provide continued reasonable assurance of the safety and effectiveness of the device, the Annual Report must include, separately for each model number (if applicable), the number of devices sold and distributed during the reporting period, including those distributed to distributors. The distribution data will serve as a denominator and provide necessary context for FDA to ascertain the frequency and prevalence of adverse events, as FDA evaluates the continued safety and effectiveness of the device.

You have agreed to provide the following data as part of the Annual Report to your PMA application:

1. You will provide a clinical update to physician users at least annually. At a minimum, this update will include, for your long-term post-approval study cohort, a summary of the number of patients for whom data are available, with the rates of aneurysm-related mortality, aneurysm rupture, secondary endovascular procedures, conversion to surgical repair, complications, endoleak, aneurysm enlargement, prosthesis migration, and patency. Reports of losses of device integrity, reasons for conversion, and causes of aneurysm-related death and rupture are to be described. A summary of any explant analysis findings is to be included. Additional relevant information from commercial experience within and outside of the U.S. is also to be included. The clinical updates for physician users and the information supporting the updates must be provided in the Annual Report.

In addition to the Annual Report requirements outlined above, you agree to conduct a post-approval study to evaluate freedom from aneurysm-related mortality (ARM) through 5 years post-implantation in a cohort consisting of newly enrolled patients plus continued follow-up of patients from the premarket clinical study, as described below, and to provide the data from this study in separate post-approval study reports.

2. The long-term follow-up study will be a prospective, consecutively enrolling, single-arm, multicenter study that will consist of continued follow-up of all available subjects from the pivotal study and the continued access study, as well as newly enrolled (*de novo*) subjects from this PAS. A total of 455 subjects will be enrolled, with at least 282 evaluable at five

years post-implantation. A minimum of 234 subjects will be newly enrolled at a minimum of 20 investigational sites across the United States.

The primary safety endpoint of the study is freedom from aneurysm-related mortality at five years post-implantation, which will be compared to a performance criterion of 94%. Aneurysm-related mortality is defined as:

> *Death from any cause within 30 days of the primary repair of the aneurysm, or any associated secondary procedure or surgical conversion, or any death due to aneurysm rupture or related to the aneurysm repair or device complications. Any death occurring within 30 days of any procedure used to treat the aneurysm will be considered due to the procedure, unless clear evidence (i.e. a death certificate) exists to the contrary.*

Secondary endpoints through five years will include all major adverse events (MAE) as defined in your protocol and serious adverse events (SAE), including aneurysm rupture, conversion to open surgical repair, endoleak, fracture in the fixation zone, migration, expansion of the aneurysm sac, and graft patency.

3. You have agreed to implement a training program, as outlined in your PAS protocol. Your post-approval study reports to your PMA will include a subset analysis examining the skills of new practitioners in the use of the Aorfix Flexible Stent Graft System. All centers will take part in the SVS Vascular Quality Initiative (VQI) which will allow the centers to compare their outcomes with regional and national outcomes. The statistical data from VQI will be used to identify training shortfalls and opportunities to improve outcomes. Should modifications be necessary to the training program, you will describe and justify each modification within the post-approval study reports. Additionally, if any insights are obtained regarding your training program, you will provide a discussion of that in the post-approval study report. Please be advised that the results from these studies should be included in the labeling as these data become available. Any updated labeling must be submitted to FDA in the form of a PMA Supplement.

Be advised that the failure to conduct any such post-approval study in compliance with the good clinical laboratory practices in 21 CFR part 58 (if a non-clinical study subject to part 58) or the institutional review board regulations in 21 CFR part 56 and the informed consent regulations in 21 CFR part 50 (if a clinical study involving human subjects) may be grounds for FDA withdrawal of approval of the PMA.

FDA would like to remind you that you should submit PAS Progress Reports every six months during the first two years of the study and annually thereafter. The reports should clearly be identified as Post-Approval Study Report. These reports should be identified as a "PMA Post-Approval Study Report" and bearing the applicable PMA reference number, should be submitted to the address below. For more information on post-approval studies, see the FDA guidance document entitled, "Procedures for Handling Post-Approval Studies Imposed by PMA Order" http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm0

70974.htm

Within 30 days of your receipt of this letter, you must submit a PMA supplement that includes a complete protocol of your post-approval study. Your PMA supplement should be clearly labeled as a "Post-Approval Study Protocol" and submitted in triplicate to the address below. Please reference the PMA number above to facilitate processing. If there are multiple protocols being finalized after PMA approval, please submit each protocol as a separate PMA supplement. For more information on post-approval studies, see the FDA guidance document entitled, "Procedures for Handling Post-Approval Studies Imposed by PMA Order" (www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm070974.htm).

Before making any change affecting the safety or effectiveness of the device, you must submit a PMA supplement or an alternate submission (30-day notice) in accordance with 21 CFR 814.39. All PMA supplements and alternate submissions (30-day notice) must comply with the applicable requirements in 21 CFR 814.39. For more information, please refer to the FDA guidance document entitled, "Modifications to Devices Subject to Premarket Approval (PMA) - The PMA Supplement Decision-Making Process" (www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/ucm089274.htm).

You are reminded that many FDA requirements govern the manufacture, distribution, and marketing of devices. For example, in accordance with the Medical Device Reporting (MDR) regulation, 21 CFR 803.50 and 21 CFR 803.52, you are required to report adverse events for this device. Manufacturers of medical devices, including in vitro diagnostic devices, are required to report to FDA no later than 30 calendar days after the day they receive or otherwise becomes aware of information, from any source, that reasonably suggests that one of their marketed devices:

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 would be likely to cause or contribute to a death or serious injury if the malfunction were to recur.

Additional information on MDR, including how, when, and where to report, is available at www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm.

In accordance with the recall requirements specified in 21 CFR 806.10, you are required to submit a written report to FDA of any correction or removal of this device initiated by you to: (1) reduce a risk to health posed by the device; or (2) remedy a violation of the act caused by the device which may present a risk to health, with certain exceptions specified in 21 CFR 806.10(a)(2). Additional information on recalls is available at www.fda.gov/Safety/Recalls/IndustryGuidance/default.htm.

CDRH does not evaluate information related to contract liability warranties. We remind you; however, that device labeling must be truthful and not misleading. CDRH will notify the public of

its decision to approve your PMA by making available, among other information, 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 www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DeviceApprovalsandClearances/PMAApprovals/default.htm. Written requests for this information can also be made to the Food and Drug Administration, Dockets Management Branch, (HFA-305), 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 submitting a petition for review under section 515(g) of the act and requesting either a hearing or review by an independent advisory committee. FDA may, for good cause, extend this 30-day filing period.

Failure to comply with any post-approval requirement constitutes a ground for withdrawal of approval of a PMA. The introduction or delivery for introduction into interstate commerce of a device that is not in compliance with its conditions of approval is a violation of law.

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. Final printed labeling that is identical to the labeling approved in draft form will not routinely be reviewed by FDA staff when accompanied by 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 6 copies, unless otherwise specified, to the address below and should reference the above PMA number to facilitate processing.

U.S. Food and Drug Administration
Center for Devices and Radiological Health
PMA Document Mail Center – WO66-G609
10903 New Hampshire Avenue
Silver Spring, MD 20993-0002

If you have any questions concerning this approval order, please contact Nels Anderson at 301-796-6367.

Sincerely yours,

Matthew G. Hillebrenner

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