



June 3, 2015

VertiFlex[®], Incorporated
Mr. Steve Reitzler
Vice President, Clinical & Regulatory Affairs
1351 Calle Avanzado, Suite 100
San Clemente, California 92673

Re: P140004
Trade/Device Name: Superior[®] InterSpinous Spacer (ISS)
Filed: March 31, 2014
Amended: April 16, May 28, June 5, October 6, December 1 and December 12, 2014;
January 20 and January 22, 2015
Product Code: NQO

Dear Mr. Reitzler:

This letter corrects our Approval Order letter of May 20, 2015.

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 Superior InterSpinous Spacer (ISS). This device is indicated to treat skeletally mature patients suffering from pain, numbness, and/or cramping in the legs (neurogenic intermittent claudication) secondary to a diagnosis of moderate degenerative lumbar spinal stenosis, with or without Grade 1 spondylolisthesis, confirmed by X-ray, MRI and/or CT evidence of thickened ligamentum flavum, narrowed lateral recess, and/or central canal or foraminal narrowing. The Superior[®] ISS is indicated for those patients with impaired physical function who experience relief in flexion from symptoms of leg/buttock/groin pain, numbness, and/or cramping, with or without back pain, and who have undergone at least 6 months of non-operative treatment. The Superior[®] ISS may be implanted at one or two adjacent lumbar levels in patients in whom treatment is indicated at no more than two levels, from L1 to L5. For this intended use, moderate degenerative lumbar spinal stenosis was defined as follows:

- 25% to 50% reduction in the central canal and/or nerve root canal (subarticular, neuroforaminal) compared to the adjacent levels on radiographic studies, with radiographic confirmation of any one of the following:
 - Evidence of thecal sac and/or cauda equina compression
 - Evidence of nerve root impingement (displacement or compression) by either osseous or non-osseous elements
 - Evidence of hypertrophic facets with canal encroachment

- AND associated with the following clinical signs:
 - Presents with moderately impaired Physical Function (PF) defined as a score of ≥ 2.0 of the Zurich Claudication Questionnaire (ZCQ)
 - Ability to sit for 50 minutes without pain and to walk 50 feet or more.

We are pleased to inform you that the PMA is approved. 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 5 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. This is a reminder that as of September 24, 2014, class III devices are subject to certain provisions of the final UDI rule. These provisions include the requirement to provide a UDI on the device label and packages (21 CFR 801.20), format dates on the device label in accordance with 21 CFR 801.18, and submit data to the Global Unique Device Identification Database (GUDID) (21 CFR 830 Subpart E). Additionally, 21 CFR 814.84 (b)(4) requires PMA annual reports submitted after September 24, 2014, to identify each device identifier currently in use for the subject device, and the device identifiers for devices that have been discontinued since the previous periodic report.

It is not necessary to identify any device identifier discontinued prior to December 23, 2013. For more information on these requirements, please see the UDI website, <http://www.fda.gov/udi>.

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.

In addition to the Annual Report requirements, you must provide the following data in post-approval study (PAS) reports for each PAS listed below, every 6 months during the first 2 years of these studies and annually thereafter. Two (2) copies of each report, identified as an "ODE Lead PMA Post-Approval Study Report" or "OSB Lead PMA Post-Approval Study Report" in accordance with how the study is identified below and bearing the applicable PMA reference number, should be submitted to the address below.

1. ODE Lead PMA Post-Approval Study – “Superion® Post-Approval Clinical Evaluation and Review (SPACER)”: The Office of Device Evaluation (ODE) will have the lead for this clinical study, which was initiated prior to device approval. The “Superion® Post-Approval Clinical Evaluation and Review (SPACER)” is described as follows:

Based on the study plan received on May 1, 2015, you must perform a 60-month PAS to evaluate the longer term safety and effectiveness of the Superior® ISS as compared to the X-STOP® Interspinous Process Decompression (IPD®) System (“X-STOP® IPD®”) by following all patients from the pivotal investigational device exemption (IDE) study G070118 with device survival to 24 months (137 Superior® ISS and 144 X-STOP® IPD® randomized patients had not died or terminally failed as of the 24-month visit) annually through 60 months at 25 study sites. Thus, the post-approval study duration is approximately 36 months, as all patients have reached 24 months prior to the start of this study.

At each annual (± 3 month) visit, you will collect the following data: Zurich Claudication Questionnaire (ZCQ); neurological status as determined by physical exam; radiographic information; maintenance of distraction; all adverse events regardless of cause; incidence of epidural injections regardless of the cause and spinal level injected; incidence of analgesic narcotics usage; reoperations, revisions, removals or supplemental fixation at the index levels; SF-12 Short Form Health Survey, Version 2; VertiFlex® Patient Satisfaction Survey; Visual Analog Scale (VAS); Oswestry Disability Index (ODI), return to work and to activities of daily living and rehabilitation utilization. In addition, you will report information on the length of hospital stay, operative time, estimated blood loss, and type of anesthesia.

Radiographic information collected will include: standing anteroposterior and lateral lumbar radiographs, range of motion on lateral standing flexion/extension films (at implanted and adjacent level(s)), radiolucency, device displacement or migration, and radiographic

observations such as incidence of total and per patient spinous process fractures or heterotopic ossification. Adverse events will be evaluated by the Medical Monitor. Data will be evaluated for safety endpoints by an independent Clinical Events Committee (CEC).

The primary hypothesis of this extended follow-up post approval study is that performance of the Superior™ ISS remains clinically non-inferior to X-STOP® IPD® at 60 months post-surgery using the same non-inferiority margin ($\delta=-0.10$) as was used at 24 months. An individual subject will be considered a success if they meet all of the following conditions at the 60-month follow-up:

Clinically significant improvement in outcomes compared to baseline, as determined by meeting the following:

- At least two of three domains of the Zurich Claudication Questionnaire (ZCQ)
 - Improvement in physical function by ≥ 0.5 points
 - Improvement in symptom severity by ≥ 0.5 points
 - “Satisfied” or “somewhat satisfied” as defined by a score of ≤ 2.5 points on the patient satisfaction domain
- No re-operations, revisions, removals or supplemental fixation at the index level(s)
- No major implant- or procedure-related complications:
 - No dislodgement, migration, or deformation
 - No new or persistent worsened neurological deficit at the index level
 - No spinous process fractures
 - No deep infection, death, or other permanent device attributed disability
- No clinically significant confounding treatments:
 - No epidural injections or nerve block procedures at index level, spinal cord stimulators or rhizotomies

The secondary study objective is to demonstrate the superiority of Superior® ISS to X-STOP® IPD® in effectively treating moderately impaired LSS patients as measured by 60 months postoperative overall success rates.

FDA will expect at least 85% follow-up at the 60-month time point to provide sufficient data to evaluate safety and effectiveness and sensitivity analysis to address missing data.

2. OSB Lead PMA Post-Approval Study - “Superion® New Enrollment Study”: The Office of Surveillance and Biometrics (OSB) will have the lead for studies initiated after device approval. The “Superion® New Enrollment Study” is described as follows:

You will recruit 358 subjects to ensure that at minimum 304 (152 per treatment group) patients will be followed through 60-months. Nine clinical visits will occur at the following intervals: screening (< 4 weeks before surgery), surgery, 6 weeks (± 2 weeks), 6 months (± 2 months), 12 months (± 2 months), 24 months (± 2 months), and annually (± 4 months) thereafter through 60 months of follow-up. At each post-operative visit, you will collect the following data: ZCQ; neurological status as determined by physical exam; radiographic information; all adverse events regardless of cause; incidence of epidural injections regardless of the cause and spinal level injected; incidence of analgesic narcotics usage; reoperations, revisions, removals or supplemental fixation at the index levels; Patient Satisfaction Survey; VAS; ODI, return to work and to activities of daily living and rehabilitation utilization. In addition, you will collect information on the length of hospital stay, operative time, estimated blood loss, and type of anesthesia.

The imaging data will be collected during screening (< 4 weeks before surgery) and during all post-operative visits via x-rays in the following positions: anteroposterior, lateral, flexion and extension. In addition, standing anteroposterior and lateral lumbar radiographs will be taken at time of discharge of index surgery. Computed tomography (CT) imaging will be captured in lieu of x-rays at 24 months for all patients, pending individual IRB approval, in the Superior® cohort. CT imaging may be performed in lieu of x-rays for Superior® patients at 60 months per surgeon discretion. CT imaging will be utilized to observe spinous process fractures.

- The primary objective of this study is to demonstrate that the composite clinical success (CCS) of Superior® device performance will be non-inferior ($\delta = -0.125$) to decompression at 60 months. The CCS is defined as following:
 - A clinically significant improvement in at least two of the three domains of the ZCQ
 - No reoperations, revisions, removals, or supplemental fixation at the index level(s)
 - No ≥ 2 injections or series of injections for the treated level, or nerve block procedures performed to treat spinal stenosis for the index level(s), or a single injection within 12 months of the 60-month endpoint.

A secondary endpoint with alternative CSS for the primary objective will also be evaluated at 60 months where CSS is defined as above with the exception of point number three where success will be defined as:

- o No injections or series of injections at any level at any time.

Be advised that the failure to conduct any such 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. In addition, the results from any post approval study 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. 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/ucm070974.htm>).

Within 30 days of your receipt of this letter, you must submit a PMA supplement that includes complete protocols of your post-approval studies described above. Your PMA supplements should be clearly labeled as an "ODE Lead PMA Post-Approval Study Report" or "OSB Lead PMA Post-Approval Study Report" as noted above 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.

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"

(<http://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 <http://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 <http://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 <http://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 Control Center - WO66-G609
10903 New Hampshire Avenue
Silver Spring, MD 20993-0002

If you have any questions concerning this approval order, please contact Zane W. Wyatt, Ph.D. at 301-796-5650 or zane.wyatt@fda.hhs.gov.

Sincerely yours,

Lori A. Wiggins -S

for
Mark N. Melkerson
Director
Division of Orthopedic Devices
Office of Device Evaluation
Center for Devices and
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