



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

August 31, 2016

William Rosellini
Chief Executive Officer
Nexeon MedSystems Inc.
1708 Jaggie Fox Way
Lexington, Kentucky 40511

**Re: Nexeon MedSystems Inc.
Amendment No. 1 to Registration Statement on Form 10
Filed August 16, 2016
File No. 000-55655**

Dear Mr. Rosellini:

We have reviewed your filing and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response and any amendment you may file in response to these comments, we may have additional comments.

Business, page 4

1. Please expand the reference on page 5 to the private placement of \$2.5 million to disclose that you have completed the private placement and state the amount of proceeds that you received from the private placement.

Regulatory Plan, page 14

2. We note your response to prior comment 11. Please expand the reference on page 15 that you "have partnered with Zyvex Technologies" and the reference on page 16 that you "have partnered with Dr. Waksman and his group" to clarify your relationships with them, such as whether you have written agreement with them, the material terms of the agreements and the duration of the agreements.

US Regulatory Approval, page 15

3. We note your response to prior comment 12. Please more fully disclose the FDA approval process and the nature of regulatory oversight. For example, include in your disclosure post-market reporting and record keeping requirements and remedies for noncompliance.

Security Ownership of Certain Beneficial Owners and Management, page 21

4. We note your response to prior comment 15. Please tell us why Mr. Ballard is not included in the table given the number of shares of your common stock and warrants issued to Mr. Ballard and his children mentioned on page 30.

Conflicts of Interest, page 26

5. We note your response to prior comment 18. Given your disclosure that Mr. Rosellini is your CEO, the chairman of Rosellini Scientific and the CEO of Nuviant Medical and Mr. Conquest is a director and COO of your company and Rosellini Scientific, disclose other material conflicts of interest, such as the number of hours that Messrs. Rosellini and Conquest will work for you per week and conflicts that may arise if both companies need urgent financing.

Certain Relationships and Related Transactions, page 30

6. We note your response to prior comment 25. Please revise the disclosure in the first paragraph on page 32 to state the cost of the Telemend common stock to Mr. Rosellini and Dr. Rosellini. Also, clarify the references on page 32 to the “One on One Fair Value principle” and the “most recent 409A valuation,” such as what is the principle, what is a 409A valuation and who performs the evaluation. In addition, tell us why you now refer on page 32 to the “acquired Emeritus, Inc. common stock.”

Recent Sales Unregistered Securities, page 34

7. We note your response to prior comment 29. Please revise your disclosure throughout your filing that you have issued 20,242,265 shares of common stock, such as the disclosure in the first and third paragraphs on page 33, to reconcile with your response to prior comment 29.

Pro Forma Financial Statements, page F-26

8. Please tell us why you did not include a pro forma income statement for the six months ended June 30, 2016 in the filing given the guidance at Rule 8-05(b)(1) of Regulation S-X.

Unaudited Pro Forma Combined Balance Sheet, page F-27

9. Please tell us why you included a pro forma balance sheet in the filing given the guidance at Rule 8-05(b)(2) of Regulation S-X.

Note 4 – Acquisition, page F-36

10. We have considered your response to comment 33. Please address the following:
- Tell us how you determined the fair value of the assets acquired. Refer to and address in your response your consideration of the fair value definition at ASC 820-10 as well as the guidance at ASC 820-10-30 and ASC 820-10-35.
 - Tell us what events or activity occurred subsequent to January 2, 2016 that support the \$1.00 per share value of the shares issued in connection with your acquisition of NXDE on February 16, 2016. We note you issued 15 million shares on January 2, 2016 that were valued at a total \$322,360 or approximately \$.02 per share.

Note 8 – Related Party Transactions, page F-42

11. We have considered your response to comment 36. Please further disclose here and cross reference to Note 7 the related party nature of the 13,200,000 shares issued to Rosellini Scientific, LLC. Also, disclose Rosellini Scientific, LLC's relationship with your Chief Executive Officer William Rosellini and the basis for the valuation of the shares issued.

Exhibit 10.01

12. We note your response to prior comment 37. Please tell us, with a view to disclosure, whether the payment of the royalty equal to 3% of net product sales is conditioned upon execution of the royalty agreement that was to be attached as exhibit D.

You may contact Gary Newberry at (202) 551-3761 or Jay Webb, Senior Accountant, at (202) 551-3603 if you have questions on the financial statements and related matters. Please contact Tom Jones at (202) 551-3602 or Tim Buchmiller, Senior Attorney, at (202) 551-3635 with any other questions.

Sincerely,

/s/ Tim Buchmiller for

Amanda Ravitz
Assistant Director
Office of Electronics and Machinery