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

DIVISION OF
CORPORATION FINANCE

March 25, 2011

Linda B. Grable
Chief Executive Officer
Imaging Diagnostic Systems, Inc.
5307 NW 35th Terrace
Fort Lauderdale, Florida 33309

Re: Imaging Diagnostic Systems, Inc.
Registration Statement on Form S-1
Amended March 15, 2011
File No. 333-171327

Dear Ms. Grable:

We have limited our review of your registration statement to those issues we have addressed in our 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 this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Summary, page 4

1. Please highlight prominently in your prospectus summary the statement in your auditor's report regarding the substantial doubt about your ability to continue as a going concern.

Risk Factors, page 6

2. Please disclose your pending proposal to increase the number of your authorized shares.

Description of Business, page 28

Overview, page 28

3. With respect to your response to prior comment 3:

- Refer to the first paragraph of your response. Tell us more specifically when you determined that you could submit a 510(k) application instead of a PMA application. In this regard, please:
  - Tell us the nature of the "information provided by the consultants" which comprised part of the basis for your determination, and tell us when this information was provided to you.
  - Reconcile your disclosure that "The FDA added 510(k) 'de novo' classification option in 2009" with the guidance you cited in response to the third bullet point of our prior comment that indicates this process was added in 1998.
  - Please clarify what you mean by "recent adjustments" on page 28, including the nature and date of the adjustments.
  - Tell us with specificity the "comparable medical devices" to which you refer in your response and when each of those devices received approval under the 510(k) process.
  - Clarify the nature of the "other factors" you considered in making your determination to submit a 510(k) application rather than a PMA application.

- From your revised disclosure that you determined you could submit a 510(k) application "while working with [y]our regulatory consultants," it remains unclear from reading your prospectus what occurred that made you determine that you could submit the 510(k) application. If the determination was based on the opinion of the consultant, please say so clearly and file the consent of the consultant as requested in prior comment 3. Otherwise, revise your disclosure to make clear how you made the determination and why your statement that the determination was made "while working with [y]our regulatory consultants" is relevant.

- It does not appear that you have explained why you believe you had no obligation to disclose your determination that you could submit a 510(k) application and the basis for your conclusion previously. Therefore, we reissue that portion of the first bullet point.

4. Regarding your responses to prior comments 4, 5 and 8:

- Please clarify the reasons why you missed the disclosed goals. The "Key" that you provided in response to prior comment 4 and your related disclosure in this S-1 is unclear because:

  - from note B in your response to prior comment 4, it is unclear why there were delays in obtaining Institutional Review Board approvals. Did you misunderstand the typical length of the approval process? Was there something about your potential product or study that caused the process to take longer than usual? If so, what was it?
  - it is unclear what the new "inclusion criteria" were.
  - you attribute delays to lack of cases for statistical analysis, but it unclear when you were aware that you would not have sufficient cases. In your table in response 4, you indicate that you were predicting that the PMA application would be submitted in December 2008 as late as November 13, 2008. Did you not know by then that you did not have sufficient cases?
  - it is unclear what you mean by "lack of cancer cases." Did the cancer rate decline during that time?
  - from note F to the table it is unclear when the improvements were made. From your revisions, it should be clear whether you disclosed that you would miss your target PMA application date when the improvements were made, and if not, why you continued to believe you would meet your target PMA application date at that time.
  - where your key refers to "H" and "I" regarding a 510(k) application, it is unclear why your disclosure continued to refer to a PMA application and does not refer to your potential submission of a 510(k) application.
  - from note G in your response to prior comment 4 it is unclear what amount of financing you believed you needed to meet the disclosed target PMA application date, how you provided investors sufficient information to understand the amount of financing required, the amount of financing you actually obtained, and when you determined that you would not have sufficient financing to meet the disclosed target PMA application date.

- Please revise your disclosure on page 38 regarding your prior projections to provide information regarding the magnitude of the missed projections. Include information regarding when you initially thought would file your PMA application and the number of subsequent missed PMA application filing targets.

5. With respect to your response to prior comment 6:

- In an appropriate section of your document, please describe sections 3(b) and 14 of the license agreement.

- Please tell us where the license provides that the royalty provisions do not apply before your receipt of FDA marketing clearance as you disclose on page 16.

- Given the disclosure contained in the first full risk factor on page 16, please add a separate risk factor highlighting the expiration in 2014 of the patent underlying the license agreement filed as exhibit 10.115, or tell us why you believe such disclosure is unnecessary.

- In an appropriate section of your document, please describe the scope, expiration date and jurisdiction that issued the patents mentioned in the second sentence of your risk factor beginning at the bottom of page 15.

- Please file Exhibit A to exhibit 10.115.

United States Government Regulation, page 32

6. With respect to your response to prior comment 7:

- Update your disclosure in this section, in your summary, and elsewhere in your document as appropriate to describe the status of the FDA's review of your 510(k) application. We note that more than 90 days have passed since the date of your submission. To the extent that the FDA has asked you for additional information, please revise to state the date you received the request and the status of your response.

- Balance your disclosure by revising here and elsewhere in the document where you present the FDA's timeframe for review to describe the typical duration of the entire review process, rather than the number of days of the FDA's review period. Also compare the total review period for:
  - a traditional 510(k) application,
  - a traditional 510(k) application followed by "de novo" review, and
  - a PMA application.

- If true, please revise to state clearly that in the event the FDA denies your initial 510(k) application and subsequently determines during the "de novo" review that

your device cannot be classified as a Class I or Class II device, you will then need to submit a PMA application to obtain the necessary regulatory approval.

Global Commercialization Update, page 41

7. With respect to your response to prior comment 9:

- Please reconcile your response that you have never shipped a CTLM system to any country without first obtaining the necessary regulatory approvals or registration with your disclosure on page 41 that indicates you have not yet submitted an application for regulatory approval in Indonesia.

- With a view toward clarified disclosure, please tell us whether any of the foreign jurisdictions listed on page 41 in which your product's regulatory status is other than "approved" require approval or registration in order to market your product there.

Management's Discussion and Analysis, second page 16

8. Please do not invoke here or elsewhere in your document a statutory safe harbor that is not applicable to you.

9. When you include in your prospectus information that you also have included in a periodic report, please review your disclosure in the prospectus carefully to ensure it is applicable to the registration statement. For example, we note that here you refer to your prospectus as a 10-Q and you attempt to incorporate by reference when it appears that you are ineligible to do so. Please revise your document accordingly.

Item 15. Recent Sales of Unregistered Securities, page II-3

10. Please update this section to disclose the information required by Item 701 of Regulation S-K. For example, we note your revised disclosure on page 51. Please note that Item 701 of Regulation S-K requires disclosure of the date of sale and the amount of securities sold.

Exhibit 5.1

11. We note your response to prior comment 11.

- It remains unclear why it is necessary and appropriate for the opinion required by Regulation S-K Item 601(b)(5) that counsel assume "compliance on the part of all parties to the Private Equity Agreement in all material respects with their

representations, warranties, covenants and agreements contained therein." Please advise or file a revised opinion.

- With a view toward clarifying the exhibit, please tell us how counsel "relied" upon the documents mentioned in the third paragraph, including whether counsel relied upon those documents for conclusions of law or readily ascertainable facts.

12. With respect to your response to prior comment 12:

- To the extent you file an opinion of counsel with a pre-effective amendment, please provide an opinion that is signed and dated.

- We note your statement that the opinion is provided "exclusively" in connection with the public offering contemplated by the registration statement. Please provide an opinion of counsel that does not seek to limit investors' reliance on the opinion.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Mary Beth Breslin at (202) 551-3625 or me at (202) 551-3617 with any questions.

Sincerely,

Russell Mancuso
Branch Chief

cc (via facsimile): Robert B. Macaulay, Esq. – Carlton Fields, P.A.