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

FORM 8-K/A

(Amendment No. 1)

CURRENT REPORT Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 3, 2010

BSD MEDICAL CORPORATION (Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation) 0-10783 (Commission File Number) 75-1590407 (IRS Employer Identification No.)

2188 West 2200 South Salt Lake City, Utah 84119 (Address of principal executive offices, including Zip Code)

Registrant's telephone number, including area code: (801) 972-5555

N/A (Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

o Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

o Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

o Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

o Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Explanatory Note

On May 3, 2010, BSD Medical Corporation (the "Company") filed a Current Report on Form 8-K (the "Original Form 8-K") to report on the issuance and sale of an aggregate of 1,644,737 shares of its common stock and warrants to purchase a total of 1,233,553 shares of its common stock pursuant to the Company's shelf registration statement on Form S-3 (File No. 333-162080), which became effective on October 1, 2009. This amendment is being filed solely to amend the Original Form 8-K to include Exhibits 5.1 and 23.1 hereto. Except as otherwise noted, the Original Form 8-K is unaltered hereby.

Item 9.01 Financial Statements and Exhibits.

- (d) Exhibits.
 - 1.1* Placement Agency Agreement, dated as of May 3, 2010, by and among the Company and Roth Capital Partners, LLC
 - 4.1* Form of Common Stock Purchase Warrant
 - 5.1 Opinion of Dorsey & Whitney LLP
 - 10.1* Securities Purchase Agreement, dated as of May 3, 2010, by and between the Company and each of the purchasers identified on the signature pages thereto
 - 23.1 Consent of Dorsey & Whitney LLP (included in Exhibit 5.1)
 - 99.1* Press Release, dated May 3, 2010

* Previously filed.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

BSD MEDICAL CORPORATION

Dated: May 5, 2010

By: Name: Title: /s/ Dennis P. Gauger Dennis P. Gauger Chief Financial Officer

EXHIBIT INDEX

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