



MRI Interventions, Inc.

13,807,533 Shares of Common Stock

This prospectus supplement relates to the prospectus dated July 7, 2017, as supplemented by prospectus supplement no. 1 dated August 11, 2017, prospectus supplement no. 2 dated August 18, 2017, prospectus supplement no. 3 dated September 5, 2017 and prospectus supplement no. 4 dated October 3, 2017, which permits the resale of up to 6,693,333 outstanding shares of our common stock and 7,114,200 shares of our common stock issuable upon the exercise of outstanding warrants, by the selling securityholders identified in the prospectus, as amended and supplemented from time to time. We will pay the expenses of registering the shares of our common stock, but we are not selling any shares of common stock in this offering and therefore will not receive any proceeds from this offering. We will, however, receive the exercise price of the warrants, if and when the warrants are exercised for cash by the securityholders.

This prospectus supplement is being filed to update, amend and supplement the information previously included in the prospectus with the information contained in our Current Report on Form 8-K filed with the Securities and Exchange Commission (the "SEC") on October 10, 2017 (the "8-K"). Accordingly, we have attached the 8-K to this prospectus supplement. You should read this prospectus supplement together with the prospectus, which is to be delivered with this prospectus supplement.

Our common stock is traded in the over-the-counter market and is quoted on the OTCQB Marketplace and the OTC Bulletin Board under the symbol MRIC. On October 6, 2017, the last reported sale price of our common stock was \$2.70 per share.

We are an "emerging growth company" under the federal securities laws and are subject to reduced public company reporting requirements. Investing in our common stock involves risk. See "Risk Factors" beginning on page 12 of the prospectus to read about factors you should consider before buying shares of our common stock.

Neither the SEC nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus or this prospectus supplement. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is October 10, 2017.

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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 OR 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): October 10, 2017 (October 6, 2017)

MRI INTERVENTIONS, INC.

(Exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction
of incorporation)

001-34822
(Commission
File Number)

58-2394628
(I.R.S. Employer
Identification Number)

5 Musick
Irvine, Ca. 92618
(Address of principal executive offices, zip code)

(949) 900-6833
(Registrant's telephone number, including area code)

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:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging Company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 5.02. Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

(b) Departure of Executive Officer and Director.

On October 6, 2017, Francis (Frank) P. Grillo entered into a Separation, Transition and Consulting Agreement (the “Separation Agreement”) with MRI Interventions, Inc. (the “Company”), under which Mr. Grillo is voluntarily resigning from his position as the Chief Executive Officer and President of the Company and as a member of the Board of Directors of the Company (the “Board”) and separating from the Company, effective as of November 7, 2017 (the “Transition Date”). Mr. Grillo’s resignation is not the result of any disagreement with management, the Company or its operations, policies or practices.

(c) Appointment of Executive Officer.

In conjunction with Mr. Grillo’s resignation as an officer of the Company, on October 6, 2017, the Company entered into an Employment Agreement (the “Employment Agreement”) with Joseph Michael Burnett, whereby Mr. Burnett will serve as the Company’s Chief Executive Officer and President, effective as of the Transition Date.

Mr. Burnett has served as Vice President and General Manager of Neuro Diagnostics and Therapy at Royal Philips, a publicly-traded global health technology company, since March 2016. Prior to serving in such role, Mr. Burnett was the Senior Vice President and Business Leader of Image Guided Therapy Devices at Royal Philips and General Manager of Volcano Corporation (a Royal Philips company) from February 2015 to March 2016. Before joining Royal Philips, Mr. Burnett worked for Volcano Corporation, where he served in various positions from November 2004 to February 2015, most recently as Executive Vice President and General Manager of its Coronary & Systems Business Unit. Prior to joining Volcano Corporation, Mr. Burnett served as an R&D Engineer and Product Manager at Guidant Corporation from August 1999 to November 2004 and worked as a Bio-Medical Engineering Researcher at Duke University from May 1998 to May 1999. Mr. Burnett holds an MBA from The Fuqua School of Business at Duke University and a B.S.E. degree in Bio-Medical Engineering from Duke University. There are no arrangements or understandings between Mr. Burnett and any other person pursuant to which he was appointed or elected to serve an executive officer or director of the Company. There are no family relationships between Mr. Burnett and any director, executive officer, or any person nominated or chosen by the Company to become a director or executive officer. There are no related person transactions (within the meaning of Item 404(a) of Regulation S-K promulgated by the Securities and Exchange Commission) between Mr. Burnett and the Company.

(d) Election of Director.

In conjunction with Mr. Grillo’s resignation as of the Transition Date as a director of the Company, the Board expects to elect Mr. Burnett, the Company’s successor Chief Executive Officer and President, to serve as a director of the Company, effective as the Transition Date, until the 2018 annual meeting of stockholders and until his successor is duly elected and qualified or until his earlier death, resignation, disqualification or removal.

(e) Compensatory Arrangements.

Separation Agreement with Mr. Grillo

The principal terms of the Separation Agreement with Mr. Grillo are summarized below.

Separation. Mr. Grillo’s employment and his employment agreement with the Company will terminate effective as of the Transition Date. Mr. Grillo will continue to be subject to the provisions and restrictive covenants in the confidentiality agreement and the non-compete agreement Mr. Grillo entered into with the Company in connection with his employment agreement.

Transition and Consulting Services. Pursuant to the Separation Agreement, Mr. Grillo will provide transition and consulting services on a full-time basis for the first two months following his separation from the Company, which will include, without limitation, working with the new Chief Executive Officer and other senior executives of the Company and providing assistance to transition his job functions and responsibilities at the Company. After such two-month period, Mr. Grillo will continue to provide consulting services and assistance to the Company as may be requested by the Company from time to time.

Payments and Other Benefits. Mr. Grillo will receive the following payments and other benefits, subject to certain conditions, pursuant to the Separation Agreement: (i) his annual bonus, based on his and the Company's performance for the fiscal year ending December 31, 2017, determined in accordance with the applicable policies and procedures set forth in his employment agreement; (ii) 87,500 unregistered shares of the Company's common stock; (iii) a lump sum payment of \$15,000; and (iv) \$30,000 per month for the first two months following his separation from the Company. Mr. Grillo will also be compensated on an hourly basis to the extent he renders any consulting services after first two months following his separation under the Separation Agreement.

Further, in recognition of the contributions made by Mr. Grillo as an officer and director of the Company, the Compensation Committee of the Board (the "Compensation Committee") has approved the extension of the option exercise period of all stock options previously granted to Mr. Grillo such that the option exercise period is coterminous with the term of the option award.

Release. In exchange for and as a condition to Mr. Grillo's receipt of the payments and other benefits provided under the Separation Agreement, Mr. Grillo will execute a general release of all claims upon the effectiveness of his separation from the Company.

The foregoing description of the terms of the Separation Agreement is only a summary and is qualified in its entirety by the full text of the Separation Agreement, a copy of which is filed as Exhibit 10.1 to this Current Report on Form 8-K and is incorporated by reference herein.

Employment Agreement with Mr. Burnett

The principal terms of the Employment Agreement with Mr. Burnett are summarized below.

Term. The term of Mr. Burnett's employment begins on the Transition Date. Mr. Burnett's employment may be terminated by the Company or Mr. Burnett upon written notice to the other party.

Compensation. Mr. Burnett's base salary is \$360,000, which is subject to adjustment at the discretion of the Compensation Committee, subject to certain limitations. Starting with the fiscal year commencing on January 1, 2018 and for each year thereafter, the Employment Agreement provides that Mr. Burnett is eligible to receive an annual target incentive bonus of 40% of his annual base salary, subject to certain performance goals to be established by the Compensation Committee. The amount of the incentive bonus payable to Mr. Burnett may be more or less than the target amount, depending on whether, and to what extent, applicable performance goals for such year have been achieved. In addition, the Employment Agreement provides that the Company will pay Mr. Burnett up to \$50,000 in reasonable relocation expenses during the first two years of his employment, subject to Mr. Burnett's continued employment through such two-year period.

As an inducement to his employment with the Company, Mr. Burnett is entitled to receive an initial signing bonus in the aggregate amount of \$100,000 under the Employment Agreement, to be paid in two equal installments on the Transition Date and the 6-month anniversary of the Transition Date, conditioned upon Mr. Burnett's continued employment. The Employment Agreement also provides that Mr. Burnett will be granted: (i) a non-qualified stock option to purchase up to 350,000 shares of the Company's common stock; and (ii) 200,000 restricted shares of the Company's common stock. The exercise price of such stock option will be equal to the fair market value of the Company's common stock on the date of grant. The stock option and restricted shares will vest as follows: (i) one-third (1/3rd) of on the first anniversary of the date of grant; and (ii) the remainder in equal quarterly installments during each of the second and third year following the date of grant.

In addition, under the Employment Agreement, Mr. Burnett is: (i) eligible for additional equity compensation from time to time in amounts and based upon criteria determined by the Compensation Committee; and (ii) entitled to participate in any benefit plan from time to time in effect for the Company's executives and/or employees generally, subject to the eligibility provisions of that plan.

If the Company terminates the employment of Mr. Burnett without cause or if Mr. Burnett terminates his employment for good reason, as those terms are defined in the Employment Agreement, then Mr. Burnett will receive: (i) any portion of base salary and bonus compensation earned but unpaid as of the termination date; (ii) an amount equal to his annual base salary in effect on the termination date; (iii) an amount equal to his average bonus for the previous two years, if any; (iv) \$18,000; and (v) reimbursement of business expenses he incurred as of the termination date. In addition, under the Employment Agreement, if the Company terminates Mr. Burnett's employment without cause or he terminates his employment for good reason, any unvested stock options and restricted stock previously granted to him will become fully vested on the termination date and, in the case of stock options, will be exercisable until the earlier of three years after the termination date or the final expiration date provided for in the applicable award agreement.

If the Company terminates Mr. Burnett's employment with cause or if he terminates his employment voluntarily, as those terms are defined in the Employment Agreement, then Mr. Burnett will receive: (i) any portion of base salary and bonus compensation earned but unpaid as of the termination date; (ii) accrued vacation and other vested benefits under the Company's equity compensation and benefit plans; and (iii) reimbursement of business expenses he incurred as of the termination date.

Change of Control Payments. Upon a change of control, as such term is defined in the Employment Agreement, any unvested stock options and restricted stock previously granted to Mr. Burnett will become fully vested. In addition, if the Company terminates Mr. Burnett's employment without cause, or if he terminates his employment for good reason, in either case within two months prior to or within 12 months following the change of control, then Mr. Burnett will be entitled to receive a lump sum payment equal to the sum of: (i) any portion of base salary and bonus compensation earned but unpaid as of the termination date; (ii) two times his annual base salary in effect on the termination date; (iii) two times the average of his two highest bonuses paid in the previous three years; (iv) \$18,000; and (v) reimbursement of business expenses he incurred as of the termination date.

Non-Competition; Non-Solicitation; Confidentiality; Assignment of Inventions. In connection with the Employment Agreement, Mr. Burnett also entered into a confidentiality agreement and non-compete agreement, which agreements impose on him customary restrictive covenants prohibiting the disclosure of the Company's confidential information, requiring Mr. Burnett to assign inventions discovered in the scope of his employment to the Company, prohibiting him from competing with the Company during the term of his employment and for one year following the termination of his employment (subject to applicable law), and prohibiting him from soliciting Company employees, consultants and contractors for two years following the termination of his employment.

The foregoing description of the terms of the Employment Agreement is only a summary and is qualified in its entirety by the full text of the Employment Agreement, a copy of which is filed as Exhibit 10.2 to this Current Report on Form 8-K and is incorporated by reference herein.

The Company will also enter into its standard form of indemnification agreement with Mr. Burnett (the "Indemnification Agreement") upon the effectiveness of his appointment and election as an officer and director of the Company. The Indemnification Agreement provides, among other things, that the Company will indemnify Mr. Burnett, under the circumstances and to the extent provided for therein, for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by him in any action or proceeding arising out of his service as an officer and/or director of the Company, any of subsidiary of the Company or any other company or enterprise to which he provides services at the Company's request. The foregoing description of the terms and conditions of the Indemnification Agreement is only a summary and is qualified in its entirety by the full text of the Indemnification Agreement, the form of which was previously filed as Exhibit 10.8 to the Company's General Form for Registration of Securities on Form 10, as originally filed on December 28, 2011, and is incorporated herein by reference.

Item 7.01. Regulation FD Disclosure.

On October 9, 2017, the Company issued a press release announcing Mr. Grillo's separation from the Company and Mr. Burnett's employment with the Company. A copy of the press release is furnished herewith as Exhibit 99.1.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

The following exhibits are filed and/or furnished herewith.

<u>Exhibit No.</u>	<u>Description</u>
10.1	Separation, Transition and Consulting Agreement, dated as of October 6, 2017, by and between the Company and Francis P. Grillo
10.2	Employment Agreement, dated as of October 6, 2017, by and between the Company and Joseph Michael Burnett
99.1	Press Release of the Company dated October 9, 2017

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.

Date: October 10, 2017

MRI INTERVENTIONS, INC.

By: /s/ Harold A. Hurwitz

Harold A. Hurwitz

Chief Financial Officer
