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

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended **June 30, 2019**
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from __________ to __________

Commission file number 001-35312

CHF SOLUTIONS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**No. 68-0533453**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**

12988 Valley View Road, Eden Prairie, MN 55344
(Address of Principal Executive Offices) (Zip Code)

(952) 345-4200
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	CHFS	Nasdaq Capital Market

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T
(§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐	Accelerated filer ☐
Non-accelerated filer ☒	Smaller reporting company ☒
Emerging growth 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. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

The number of outstanding shares of the registrant's common stock, $0.0001 par value, as of August 5, 2019 was 2,584,972

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CHF SOLUTIONS, INC. AND SUBSIDIARIES
Condensed Consolidated Balance Sheets
(In thousands, except share and per share amounts)

	June 30, 2019 (unaudited)	December 31, 2018
ASSETS		
Current assets		
Cash and cash equivalents	$ 7,402	$ 5,480
Accounts receivable	932	786
Inventory	1,690	1,658
Other current assets	278	203
Total current assets	**10,302**	**8,127**
Property, plant and equipment, net	574	536
Operating lease right-of-use asset	531	—
Other assets	21	113
TOTAL ASSETS	**$ 11,428**	**$ 8,776**
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 1,178	$ 1,133
Accrued compensation	1,186	1,498
Current portion of operating lease liability	176	—
Other current liabilities	97	209
Total current liabilities	**2,637**	**2,840**
Operating lease liability	357	-
Total liabilities	**2,994**	**2,840**
Commitments and contingencies	—	—
Stockholders' equity		
Series A junior participating preferred stock as of June 30, 2019 and December 31, 2018, par value $0.0001 per share; authorized 30,000 shares, none outstanding	—	—
Series F convertible preferred stock as of June 30, 2019 and December 31, 2018, par value $0.0001 per share; authorized 535 and 535 shares, respectively, issued and outstanding 535 and 535, respectively	—	—
Series G convertible preferred stock as of June 30, 2019 and December 31, 2018, par value $0.0001 per share; authorized 550,842 and 0 shares, respectively, issued and outstanding 550,842 and 0, respectively		
Preferred stock as of June 30, 2019 and December 31, 2018, par value $0.0001 per share; authorized 39,418,623 and 39,969,465 shares, none outstanding	—	—
Common stock as of June 30, 2019 and December 31, 2018, par value $0.0001 per share; authorized 100,000,000 shares, issued and outstanding 2,328,320 and 513,445, respectively	—	—
Additional paid-in capital	215,761	204,101
Accumulated other comprehensive income:		
Foreign currency translation adjustment	1,218	1,223
Accumulated deficit	(208,545)	(199,388)
Total stockholders' equity	**8,434**	**5,936**
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$ 11,428**	**$ 8,776**

See notes to the condensed consolidated financial statements.

CHF SOLUTIONS, INC. AND SUBSIDIARIES

Condensed Consolidated Statements of Operations and Comprehensive Loss

(Unaudited)

(In thousands, except per share amounts)

	Three months ended June 30, 2019	Three months ended June 30, 2018	Six months ended June 30, 2019	Six months ended June 30, 2018
Net sales	$ 1,677	$ 1,099	$ 2,892	$ 2,136
Costs and expenses:				
Cost of goods sold	835	870	1,447	1,771
Selling, general and administrative	3,973	3,765	7,991	7,776
Research and development	1,297	643	2,607	1,122
Total costs and expenses	6,105	5,278	12,045	10,669
Loss from operations	(4,428)	(4,179)	(9,153)	(8,533)
Loss before income taxes	(4,428)	(4,179)	(9,153)	(8,533)
Income tax expense	(2)	(2)	(4)	(2)
Net loss	**$ (4,430)**	**$ (4,181)**	**$ (9,157)**	**$ (8,535)**
Basic and diluted loss per share	**$ (1.93)**	**$ (13.03)**	**$ (8.82)**	**$ (28.03)**
Weighted average shares outstanding – basic and diluted	2,295	321	1,550	304
Other comprehensive loss:				
Foreign currency translation adjustments	$ (3)	$ (2)	$ (5)	$ (1)
Total comprehensive loss	**$ (4,433)**	**$ (4,183)**	**$ (9,162)**	**$ (8,536)**

See notes to the condensed consolidated financial statements.

CHF SOLUTIONS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Stockholders' Equity
(In thousands, except share amounts)

	Outstanding Shares of Common Stock	Common Stock	Additional Paid in Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Stockholders' Equity
Balance December 31, 2017	**271,357**	**$ —**	**$ 197,367**	**$ 1,227**	**$ (182,356)**	**$ 16,238**
Net loss	—	—	—	—	(4,354)	(4,354)
Foreign currency translation adjustment	—	—	—	1	—	1
Stock-based compensation, net	3	—	501	—	—	501
Conversion of preferred stock into common stock	32,365	—	—	—	—	—
Balance March 31, 2018	**303,725**	**$ —**	**$ 197,868**	**$ 1,228**	**$ (186,710)**	**$ 12,386**
Net loss	—	—	—	—	(4,181)	(4,181)
Foreign currency translation adjustment	—	—	—	(2)	—	(2)
Stock-based compensation and stock awards, net	3	—	606	—	—	606
Conversion of preferred stock into common stock	18,127	—	—	—	—	—
Balance June 30, 2018	**321,855**	**$ —**	**$ 198,474**	**$ 1,226**	**$ (190,891)**	**$ 8,809**

	Outstanding Shares of Common Stock	Common Stock	Additional Paid in Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Stockholders' Equity
Balance December 31, 2018	**513,445**	**$ —**	**$ 204,101**	**$ 1,223**	**$ (199,388)**	**$ 5,936**
Net loss	—	—	—	—	(4,727)	(4,727)
Foreign currency translation adjustment	—	—	—	(2)	—	(2)
Stock-based compensation, net	3	—	362	—	—	362
Issuance of common and preferred stock, net	455,178	—	10,959	—	—	10,959
Conversion of preferred stock into common stock	1,100,394	—	—	—	—	—
Balance March 31, 2019	**2,069,020**	**$ —**	**$ 215,422**	**$ 1,221**	**$ (204,115)**	**$ 12,528**
Net loss	—	—	—	—	(4,430)	(4,430)
Foreign currency translation adjustment	—	—	—	(3)	—	(3)
Stock-based compensation, net	—	—	339	—	—	339
Conversion of preferred stock into common stock	259,300	—	—	—	—	—
Balance June 30, 2019	**2,328,320**	**$ —**	**$ 215,761**	**$ 1,218**	**$ (208,545)**	**$ 8,434**

See notes to the condensed consolidated financial statements.

CHF SOLUTIONS, INC. AND SUBSIDIARIES
Condensed Consolidated Statements of Cash Flows
(Unaudited)
(in thousands)

	Six months ended June 30, 2019	Six months ended June 30, 2018
Operating Activities:		
Net loss	$ (9,157)	$ (8,535)
Adjustments to reconcile net loss to cash flows used in operating activities:		
Depreciation and amortization	120	115
Stock-based compensation expense, net	701	1,107
Changes in operating assets and liabilities:		
Accounts receivable	(146)	(107)
Inventory	(32)	(727)
Other current assets	(75)	(48)
Other assets and liabilities	(18)	—
Accounts payable and accrued expenses	(267)	(283)
Net cash used in operating activities	**(8,874)**	**(8,478)**
Investing Activities:		
Purchases of property and equipment	(158)	(121)
Net cash used in investing activities	**(158)**	**(121)**
Financing Activities:		
Net proceeds from public stock offering, net	10,959	—
Net cash provided by financing activities	**10,959**	—
Effect of exchange rate changes on cash	(5)	(1)
Net increase (decrease) in cash and cash equivalents	1,922	(8,600)
Cash and cash equivalents - beginning of period	5,480	15,595
Cash and cash equivalents - end of period	**$ 7,402**	**$ 6,995**

See notes to the condensed consolidated financial statements.

CHF SOLUTIONS, INC. AND SUBSIDIARIES
Notes to Condensed Consolidated Financial Statements
(Unaudited)

Note 1 – Nature of Business and Basis of Presentation

Nature of Business: CHF Solutions, Inc. (the "Company") is a medical device company focused on developing, manufacturing and commercializing the Aquadex FlexFlow® system for aquapheresis therapy. The Aquadex FlexFlow system ("Aquadex FlexFlow") is indicated for temporary (up to eight hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and extended (longer than 8 hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and require hospitalization. CHF Solutions, Inc. is a Delaware corporation headquartered in Minneapolis with wholly owned subsidiaries in Australia, Ireland and Delaware. The Company has been listed on Nasdaq since February 2012.

Previously, the Company was focused on developing the C-Pulse® Heart Assist System for treatment of Class III and ambulatory Class IV heart failure. In August 2016, the Company acquired the business associated with the Aquadex FlexFlow system (herein referred to as the "Aquadex Business") from a subsidiary of Baxter International, Inc. ("Baxter"), and refocused its strategy to fully devote its resources to the Aquadex Business.

In December 2018, the Company's stockholders approved a reverse split of its outstanding common stock at a ratio in the range of 1-for-2 to 1-for 14 and, in January 2019, the board of directors approved a 1-for-14 reverse split of the Company's outstanding common stock that became effective after trading on January 2, 2019. This reverse stock split did not change the par value of the Company's common stock or the number of common or preferred shares authorized by the Company's Fourth Amended and Restated Certificate of Incorporation. All share and per-share amounts have been retroactively adjusted to reflect the reverse stock split for all periods presented.

Principles of Consolidation: The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim financial information and with the instructions to Form 10-Q and Article 8 of Regulation S-X. Certain information and note disclosures normally included in the audited annual consolidated financial statements have been condensed or omitted pursuant to those rules and regulations. Accordingly, they do not include all of the information necessary for a fair presentation of results of operations, comprehensive loss, financial condition, and cash flows in conformity with U.S. GAAP. In the opinion of management, the condensed consolidated financial statements reflect all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation of the results of the Company for the periods presented. Operating results for interim periods are not necessarily indicative of results that may be expected for the year as a whole. The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and the related disclosures at the date of the consolidated financial statements and during the reporting period. Actual results could materially differ from these estimates.

For further information, refer to the consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

Going Concern: The Company's consolidated financial statements have been prepared and presented on a basis assuming it continues as a going concern. During the years ended December 31, 2018 and 2017 and through June 30, 2019, the Company incurred losses from operations and net cash outflows from operating activities as disclosed in the consolidated statements of operations and cash flows, respectively. As of June 30, 2019, the Company had an accumulated deficit of $208.5 million and it expects to incur losses for the immediate future. To date, the Company has been funded by debt and equity financings, and although the Company believes that it will be able to successfully fund its operations, there can be no assurance that it will be able to do so or that it will ever operate profitably. These factors raise substantial doubt about the Company's ability to continue as a going concern through the next twelve months.

The Company became a revenue generating company after acquiring the Aquadex Business in August 2016. The Company expects to incur additional losses in the near-term as it grows the Aquadex Business, including investments in expanding its sales and marketing capabilities, purchasing inventory, manufacturing components, and complying with the requirements related to being a U.S. public company. To become and remain profitable, the Company must succeed in expanding the adoption and market acceptance of the Aquadex FlexFlow. This will require the Company to succeed in training personnel at hospitals and effectively and efficiently manufacturing, marketing and distributing the Aquadex FlexFlow and related components. There can be no assurance that the Company will succeed in these activities, and it may never generate revenues sufficient to achieve profitability.

On April 24, 2017, November 27, 2017, July 3, 2018, and March 12, 2019, the Company closed on underwritten public equity offerings for aggregate net proceeds of approximately $39.8 million after deducting the underwriting discounts and commissions and other costs associated with the offerings (see Note 4 –Equity). The Company will require additional funding to grow its Aquadex Business, which may not be available on terms favorable to the Company, or at all. The Company may receive those funds from the proceeds from future warrant exercises, issuances of equity securities, or other financing transactions. Should warrant exercises not materialize or future capital raising be unsuccessful, the Company may not be able to continue as a going concern. No adjustments have been made relating to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should the Company not continue as a going concern.

Revenue Recognition: The Company recognizes revenue in accordance with Accounting Standards Codification ("ASC"), Topic 606, *Revenue from Contracts with Customers*, which the Company adopted effective January 1, 2018. Accordingly, the Company recognizes revenue when its customers obtain control of its products or services, in an amount that reflects the consideration that the Company expects to receive in exchange for those goods and services. See Note 2 – Revenue Recognition, for additional disclosures. For the three months and six months ended June 30, 2019, one customer represented 20% and 12% of net sales, respectively. For the three months ended June 30, 2018, one customer represented 17% of net sales. For the six months ended June 30, 2018, two customers each represented 11% of net sales.

Accounts Receivable: Accounts receivable are unsecured, recorded at net realizable value, and do not bear interest. The Company makes judgments as to its ability to collect outstanding receivables based upon significant patterns of collectability, historical experience, and managements' evaluation of specific accounts and will provide an allowance for credit losses when collection becomes doubtful. The Company performs credit evaluations of its customers' financial condition on an as-needed basis. Payment is generally due 30 days from the invoice date and accounts past 30 days are individually analyzed for collectability. When all collection efforts have been exhausted, the account is written off against the related allowance. To date the Company has not experienced any write-offs or significant deterioration of the aging of its accounts receivable, and therefore, no allowance for doubtful accounts was considered necessary as of June 30, 2019 or December 31, 2018. As of June 30, 2019, one customer represented 23% of the accounts receivable balance. As of December 31, 2018, three customers represented 18%, 13% and 13% of the accounts receivable balance.

Inventories: Inventories are recorded as the lower of cost or net realizable value using the first-in-first out method. Overhead is allocated to manufactured finished goods inventory based on the normal capacity of the company's production facilities. Abnormal amounts of overhead, if any, are expensed as incurred. Inventories consisted of the following:

(in thousands)	**June 30, 2019**	**December 31, 2018**
Finished Goods	$ 465	$ 517
Work in Process	96	34
Raw Materials	1,129	1,107
Total	$ 1,690	$ 1,658

Contingent consideration: In connection with the Company's purchase of the Aquadex Business in August 2016, the Company had an obligation to pay additional consideration that was contingent upon the occurrence of certain future events (see Note 9 - Commitments and Contingencies). Contingent consideration was recognized at the acquisition date at $126,000, the estimated fair value of the contingent milestone payments. The fair value of the contingent consideration was remeasured to its estimated fair value at the end of each reporting period, with changes recorded to earnings. As of June 30, 2019, the Company deemed the likelihood of payment of the additional consideration to be remote and estimated the fair value of the contingent consideration to be $0. Therefore, the Company reduced this liability to $0 as of June 30, 2019.

Loss per share: Basic loss per share is computed based on the net loss for each period divided by the weighted average number of common shares outstanding. The net loss allocable to common stockholders for the six months ended June 30, 2019, reflects a $4.5 million increase for the net deemed dividend to preferred stockholders provided in connection with the close of the public offering of Series G Convertible Preferred Stock on March 12, 2019 (see Note 4 - Equity), representing the intrinsic value of the shares at the time of issuance.

Diluted earnings per share is computed based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding, increased by the number of additional shares that would have been outstanding had the potentially dilutive common shares been issued, and reduced by the number of shares the Company could have repurchased from the proceeds from issuance of the potentially dilutive shares. Potentially dilutive shares of common stock include shares underlying outstanding convertible preferred stock, warrants, stock options and other stock-based awards granted under stock-based compensation plans.

The following table sets forth the potential shares of common stock that are not included in the calculation of diluted net loss per share because to do so would be anti-dilutive as of the end of each period presented:

	June 30	
	2019	**2018**
Warrants to purchase common stock	5,430,721	608,787
Series G convertible preferred stock	550,842	-
Series F convertible preferred stock	102,185	20,740
Stock options	241,635	152,142
Restricted stock units	-	9
Total	6,325,383	781,678

The following table reconciles reported net loss with reported net loss per share for the periods ended June 30, 2019:

(in thousands, except per share amounts)	**Three months**	**Six months**
Net loss	$ (4,430)	$ (9,157)
Deemed dividend to preferred shareholders (see Note 4)		(4,509)
Net loss after deemed dividend	(4,430)	(13,666)
Weighted average shares outstanding	2,295	1,550
Basic and diluted loss per share	$ (1.93)	$ (8.82)

New Accounting Pronouncements: In February 2016, the Financial Accounting Standards Board ("FASB") issued updated guidance to improve financial reporting about leasing transactions. This guidance required organizations that lease assets to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases. The original guidance required application on a modified retrospective basis with the earliest period presented. In August 2018, the FASB issued new guidance which included an option to not restate comparative periods in transition. The Company's adopted this new standard on January 1, 2019 with no retrospective adjustments to prior comparative periods. The adoption of this standard on January 1, 2019 resulted in an increase of approximately $0.6 million in the Company's other long-term assets and in short and long-term liabilities recorded on its consolidated balance sheet. In addition, the Company elected the package of practical expedients permitted under the transition guidance within the new standard which allowed it to carry forward the historical lease classification. See Note 7 – Operating Leases for additional qualitative and quantitative disclosures

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement – Disclosure Framework (Topic 820). The updated guidance improves and simplifies the disclosure requirements on fair value measurements for level 3 assets and liabilities valued at fair value. The Company early-adopted the guidance effective for this reporting period and the effect on the consolidated financial statements was not material.

Note 2 – Revenue Recognition

Net Sales

The Company sells its products in the United States primarily through a direct sales force. Customers who purchase the Company's products include hospitals and clinics throughout the United States. In countries outside the United States, the Company sells its products through a limited number of specialty healthcare distributors in the United Kingdom, Italy, Spain, Germany, Southeast Asia, Brazil and India. These distributors resell the Company's products to hospitals and clinics in their respective geographies.

Revenue from product sales are recognized when the customer or distributor obtains control of the product, which occurs at a point in time, most frequently upon shipment of the product or receipt of the product, depending on shipment terms. The Company's standard shipping terms are FOB shipping point, unless the customer requests that control and title to the inventory transfer upon delivery. Revenue includes shipment and handling fees charged to customers.

Revenue is measured as the amount of consideration we expect to receive, adjusted for any applicable estimates of variable consideration and other factors affecting the transaction price, which is based on the invoiced price, in exchange for transferring products. All revenue is recognized when we satisfy our performance obligations under the contract. The majority of our contracts have a single performance obligation and are short term in nature. The Company has entered into extended service plans with customers which are recognized over time. This revenue represents less than 1% of net sales for the three and six months ended June 30, 2019 and 2018. The unfulfilled performance obligations related to these extended service plans is included in deferred revenue, which is included in other current liabilities on the condensed consolidated balance sheet. The majority of the deferred revenue is expected to be recognized within one year.

Sales taxes and value added taxes in foreign jurisdictions that are collected from customers and remitted to governmental authorities are accounted for on a net basis and therefore are excluded from net sales. Revenue includes shipment and handling fees charged to customers. Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of goods sold.

Product Returns: The Company offers customers a limited right of return for its product in case of non-conformity or performance issues. The Company estimates the amount of its product sales that may be returned by its customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized. The Company currently estimates product return liabilities using available industry data and its own historical sales and returns information. The Company has not received any returns to date and believes that future returns of its products will be minimal. Therefore, revenue recognized is not currently impacted by variable consideration related to product returns.

Note 3 - Debt

On August 5, 2016, the Company entered into a loan and security agreement with Silicon Valley Bank (the Bank). Under this agreement, the Bank agreed to provide the Company with up to $5.0 million in debt financing, consisting of a term loan in an aggregate original principal amount not to exceed $4.0 million (the “Term Loan”) and a revolving line of credit in an aggregate principal amount not to exceed $1.0 million outstanding at any time (the “Revolving Line”). Proceeds from the loans were to be used for general corporate and working capital purposes. Advances under the Term Loan were available to the Company until November 30, 2016 and were subject to the Company’s compliance with liquidity covenants. The Term Loan expired unused on November 30, 2016 and the Term Loan is no longer available to be drawn. Advances under the Revolving Line are available to the Company until March 31, 2020 and accrue interest at a floating annual rate equal to 1.75% or 1.0% above the prime rate, depending on liquidity factors. Outstanding borrowings, if any, are collateralized by all of the Company’s assets, excluding intellectual property which is subject to a negative pledge. There were no borrowings outstanding under this facility as of June 30, 2019 or December 31, 2018.

Note 4 - Equity

Series F Convertible Preferred Stock: On November 27, 2017, the Company closed on an underwritten public offering of Series F convertible preferred stock and warrants to purchase shares of common stock for gross proceeds of $18.0 million. Net proceeds totaled approximately $16.2 million after deducting the underwriting discounts and commissions and other costs associated with the offering.

The offering was comprised of Series F convertible preferred stock, convertible into shares of the Company’s common stock at an initial conversion price of $63.00 per share. Each share of Series F preferred stock was accompanied by a Series 1 warrant, which was to expire on the first anniversary of its issuance, to purchase 16 shares of the Company’s common stock at an exercise price of $63.00 per share, and a Series 2 warrant, which expires on the seventh anniversary of its issuance, to purchase 16 shares of the Company’s common stock at an exercise price of $63.00 per share. The Series F preferred stock and the warrants were immediately separable and were issued separately. The conversion price of the Series F preferred stock will be adjusted in the event of a stock split, combination, reclassification or stock dividend or if the Company consummates a fundamental transaction. The Series F preferred stock also has full ratchet price based anti-dilution protection, subject to customary carve outs, in the event of a down-round financing at a price per share below the conversion price of the Series F preferred stock (which protection will expire if, during any 20 of 30 consecutive trading days, the volume weighted average price of the Company’s common stock exceeds 300% of the then-effective conversion price of the Series F preferred stock and the daily dollar trading volume for each trading day during such period exceeds $200,000). The exercise price of the warrants is fixed and does not contain any variable pricing features, nor any price based anti-dilutive features, apart from customary adjustments for stock splits, combinations, reclassifications, stock dividends or fundamental transactions. A total of 18,000 shares of Series F Convertible Preferred Stock initially convertible into 286,714 shares of common stock and warrants to purchase 573,310 shares of common stock were issued in the offering.

As noted below, effective July 3, 2018, the conversion price of the Series F convertible preferred stock was reduced from $63.00 to $29.68, the per share price in the July 2018 Offering described below. Effective March 12, 2019, the conversion price of the Series F convertible preferred stock was reduced again from $29.68 to $5.25, the per share price to the public of the Series G convertible preferred stock which closed in an underwritten public offering on March 12, 2019, and each share of the remaining Series F convertible preferred stock is convertible into 191 shares of the Company's common stock. As of both June 30, 2019, and December 31, 2018, 535 shares of the Series F convertible preferred stock remained outstanding.

July 2018 Offering: On July 3, 2018, the Company closed on an underwritten public offering of 181,941 shares of its common stock at a public offering price of $29.68 per share, for gross proceeds of $5.4 million, including the full exercise of the underwriters' over-allotment option to purchase additional shares of the Company's common stock (the "July 2018 Offering"). Net proceeds totaled approximately $4.6 million after deducting underwriting discounts and commissions and offering expenses.

In connection with the July 2018 Offering, and to induce certain institutional investors who hold warrants issued by the Company in November 2017 ("November 2017 Warrants") to participate in the July 2018 Offering, the Company entered into letter agreements with such institutional investors. Pursuant to the terms of these agreements, the Company agreed, effective July 3, 2018, to reduce the per share exercise price of the November 2017 Warrants held by such institutional investors to $29.68 and to extend the expiration date of the warrants that were to expire on November 27, 2018 to November 27, 2019. The number of common shares underlying the warrants that were repriced did not change. The repriced warrants are exercisable for 554,322 shares of common stock in the aggregate, of which, following such amendment, half expire on November 27, 2019 and half expire on November 27, 2024. The repricing of the warrants was accounted as an equity financing cost, with no impact to net proceeds from the offering.

As noted above, the Company's outstanding Series F preferred stock is subject to full-ratchet anti-dilution protection in the event the Company sells any common stock at a price lower than the then-conversion price of the Series F preferred stock. As a result of the July 2018 Offering, effective July 3, 2018, the conversion price of the Series F preferred stock was reduced from $63.00 to $29.68, the per share price in the July 2018 Offering.

Series G Convertible Preferred Stock and March 2019 Offering: On March 12, 2019, the Company closed on an underwritten public offering of common stock, Series G convertible preferred stock and warrants to purchase shares of common stock for gross proceeds of $12.4 million, which included the full exercise of the underwriter's over-allotment option to purchase additional shares and warrants ("March 2019 Offering"). Net proceeds totaled approximately $11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering. The Series G convertible preferred stock included a beneficial conversion amount of $4.5 million, representing the intrinsic value of the shares at the time of issuance. This amount is reflected as an increase to the loss per share allocable to common stockholders in the six months ended June 30, 2019.

The March 2019 Offering was comprised of 455,178 shares of common stock priced at $5.25 per share and 1,910,536 shares of Series G convertible preferred stock, convertible into common stock at $5.25 per share. Each share of Series G convertible preferred stock and each share of common stock was accompanied by a Series 1 warrant and a Series 2 warrant. The Series 1 warrants are exercisable into 2,365,714 shares of common stock and the Series 2 warrants are exercisable into 2,365,714 shares of common stock. Series 1 warrants expire on the fifth anniversary of the date of issuance and are exercisable at $5.25 to purchase one share of common stock. Series 2 warrants expire on the earlier of: (i) the eighteen-month anniversary of the date of issuance and (ii) the 30th trading day following the public announcement of the receipt from the U.S. Food and Drug Administration of clearance or approval of a modification to the product label for the Aquadex FlexFlow system to include pediatric patients. Series 2 warrants are exercisable at $5.25 per share of common stock. The conversion price of the Series G convertible preferred stock as well as the exercise price of the warrants are fixed and do not contain any variable pricing features, nor any price based anti-dilutive features apart from customary adjustments for splits and reverse splits of common stock. The Series G convertible preferred stock included a beneficial ownership limitation of 4.99% but had no dividend preference (except to extent dividends are also paid on the common stock), liquidation preference or other preferences over common stock. The securities comprising the units were immediately separable and were issued separately.

As of June 30, 2019, 1,359,694 shares of the Series G convertible preferred stock had been converted into common stock and 550,842 remained outstanding.

As noted above, the Company's outstanding Series F convertible preferred stock is subject to full-ratchet anti-dilution protection in the event the Company sells any common stock at a price lower than the then-conversion price of the Series F convertible preferred stock. As a result of the March 2019 Offering, the conversion price of the Series F convertible preferred stock was reduced from $29.68, to $5.25, the per share price of the Series G convertible preferred stock.

Placement Agent Fees: In connection with the issuance of the Series F convertible preferred stock, the July 2018 Offering, and the March 2019 Offering, the Company paid the placement agent an aggregate cash placement fee equal to 9%, 8% and 8%, respectively, of the aggregate gross proceeds raised in the offering and issued no warrants to the placement agent.

Market-Based Warrants: On May 30, 2019, the Company granted a market-based warrant to a consultant in exchange for investor relations services. The warrant represents the right to acquire up to 100,000 shares of the Company's common stock at an exercise price of $3.18 per share, the closing stock price of the Company's common shares on May 30, 2019. The warrant is subject to a vesting schedule based on the Company achieving certain market stock prices within a specified period of time. The warrant expires on May 30, 2024. The warrant was valued at $1.93 per share using the Monte Carlo valuation methodology and will be expensed over the term of the consulting engagement which is twelve months. The significant inputs used for the Monte Carlo valuation were the expected stock price volatility of 136.21% and management's expectations regarding the timing of regulatory clearance for an expanded label in pediatrics.

Note 5 - Stock-Based Compensation

Under the fair value recognition provisions of U.S. GAAP for accounting for stock-based compensation, the Company measures stock-based compensation expense at the grant date based on the fair value of the award and recognizes the compensation expense over the requisite service period, which is generally the vesting period.

The following table presents the classification of stock-based compensation expense recognized for the periods below:

	Three months ended June 30,		Six months ended June 30,	
(in thousands)	**2019**	**2018**	**2019**	**2018**
Selling, general and administrative expense	$ 309	$ 555	$ 635	$ 1,006
Research and development expense	30	51	66	101
Total stock-based compensation expense	**$ 339**	**$ 606**	**$ 701**	**$ 1,107**

Note 6 - Fair Value of Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, warrants, and contingent consideration.

Pursuant to the requirements of ASC Topic 820 *"Fair Value Measurement,"* the Company's financial assets and liabilities measured at fair value on a recurring basis are classified and disclosed in one of the following three categories:

- *Level 1* - Financial instruments with unadjusted quoted prices listed on active market exchanges.

- *Level 2* - Financial instruments lacking unadjusted, quoted prices from active market exchanges, including over the counter traded financial instruments. The prices for the financial instruments are determined using prices for recently traded financial instruments with similar underlying terms as well as directly or indirectly observable inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.

- *Level 3* - Financial instruments that are not actively traded on a market exchange. This category includes situations where there is little, if any, market activity for the financial instrument. The prices are determined using significant unobservable inputs or valuation techniques.

The fair value of the Company's contingent consideration, as described in Note 1, was initially measured based on the consideration expected to be transferred (probability-weighted), discounted back to present value, and it was considered a Level 3 instrument. The discount rate used was determined at the time of measurement in accordance with accepted valuation methods. The Company measured the liability on a recurring basis using Level 3 inputs including probabilities of payment and projected payment dates. As of June 30, 2019, the Company deemed the likelihood of payment of the additional consideration to be remote and estimated the fair value of the contingent consideration to be $0. Therefore, the Company reduced this liability to $0 as of June 30, 2019.

The following is a rollforward of the fair value of Level 3 items:

(in thousands)		
Balance December 31, 2018	$	126
Change in fair value		(126)
Balance as of June 30, 2019	$	-

The fair value of the market-based warrants described in Note 4 was calculated using a Monte Carlo valuation model and was classified as Level 3 in the fair value hierarchy. These warrants are classified as permanent equity and as a result, were measured at the grant date and are not required to be remeasured to fair value at each reporting period end.

All cash equivalents are considered Level 1 measurements for all periods presented. The Company does not have any financial instruments classified as Level 2 or any other classified as Level 3 and there were no movements between these categories during the periods ended June 30, 2019 and December 31, 2018. The Company believes that the carrying amounts of all remaining financial instruments approximate their fair value due to their relatively short maturities.

Note 7 – Operating Leases

The Company leases office and manufacturing space under a non-cancelable operating lease that expires in March 2022. In August 2018, the Company entered into a third amendment to the lease, extending the term of the lease from March 31, 2019 to March 31, 2022. Beginning on April 1, 2019, the annual base rent is $9.00 per square foot, subject to annual increases of $0.25 per square foot.

The cost components of the Company's operating lease were as follows for the three and six months ended June 30, 2019:

(in thousands)	**Three Months**	**Six Months**
Operating lease cost	$ 53	$ 102
Variable lease cost	33	59
Total	**$ 86**	**$ 161**

Variable lease costs consist primarily of taxes, insurance, and common area or other maintenance costs for our leased office and manufacturing space.

Maturities of our lease liability for our operating lease are as follows as of June 30, 2019:

(in thousands)		
2019	$	104
2020		213
2021		219
2022		55
Total lease payments		591
Less: Interest		(58)
Present value of lease liability	**$**	**533**

As of June 30, 2019, the remaining lease term was 2.75 years and discount rate was 7.5%. For the six months ended June 30, 2019, the operating cash outflows from our operating lease for office and manufacturing space were $102,000.

Rent expense related to operating leases for office and manufacturing space and office equipment was approximately $54,000 and $106,000 for the three and six months ended June 30, 2018, respectively. Future minimum lease payments, under non-cancelable operating leases as of December 31, 2018, were approximately $217,000, $220,000, $219,000, $55,000, and $0 for each of the years ended December 31, 2019, through 2023, respectively.

Note 8 – Income Taxes

The Company provides for a valuation allowance when it is more likely than not that it will not realize a portion of the deferred tax assets. The Company has established a full valuation allowance for U.S. and foreign deferred tax assets due to the uncertainty that enough taxable income will be generated in those taxing jurisdictions to utilize the assets. Therefore, the Company has not reflected any benefit of such deferred tax assets in the accompanying condensed consolidated financial statements.

As of June 30, 2019, there were no material changes to what the Company disclosed regarding tax uncertainties or penalties in its Annual Report on Form 10-K for the year ended December 31, 2018.

Note 9—Commitments and Contingencies

Employee Retirement Plan: The Company has a 401(k)-profit sharing plan that provides retirement benefit to substantially all full-time U.S. employees. Eligible employees may contribute a percentage of their annual compensation, subject to Internal Revenue Service (“IRS”) limitations, with the Company matching a portion of the employee’s contributions at the discretion of the Company.

Contingent Consideration: As part of the acquisition of the Aquadex Business from Baxter in August 2016, the Company agreed that if it disposed of any of the Aquadex assets for a price that exceeded $4.0 million within three years of the closing, it would pay Baxter 40% of the amount of such excess. This commitment expired on August 6, 2019.

In addition, it also agreed that if shares of its common stock cease to be publicly traded on the Nasdaq Capital Market, Baxter has the option to require the Company to repurchase, in cash, all or any part of the common shares held by Baxter at a price equal to their fair market value, as determined by a third-party appraiser.

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our interim condensed consolidated financial statements and related notes included in Part I, Item 1 of this Quarterly Report and the audited consolidated financial statements and related notes and Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K for the year ended December 31, 2018. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a variety of factors, including those discussed in Part I, Item 1A “Risk Factors,” in our Annual Report on Form 10-K for the year ended December 31, 2018 and in our subsequent filings with the Securities and Exchange Commission (SEC).

Unless otherwise specified or indicated by the context, CHF Solutions, Company, we, us and our, refer to CHF Solutions, Inc. and its subsidiaries.

OVERVIEW

About CHF Solutions

We are a medical device company focused on developing, manufacturing and commercializing the Aquadex FlexFlow® system for aquapheresis therapy. Aquadex FlexFlow system is indicated for temporary (up to eight hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and extended (longer than 8 hours) ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy and require hospitalization. In the United States, we hold 501(k) clearance from the FDA to market and sell the Aquadex FlexFlow system. In the European Union ("EU"), we are required to hold a CE Mark to import our product into the EU. The CE Mark for the Aquadex FlexFlow system had previously expired. We received renewal for the Aquadex FlexFlow circuit in the second quarter of 2019 and expect to receive renewal for the Aquadex FlexFlow console by the latter half of 2019, which would allow us to import additional console inventory into the EU. We believe that we currently have sufficient inventory of consoles already available for sale in the EU market and the timing of the receipt of the CE Mark for the console will not have a material impact on our revenue.

Previously, the Company was focused on developing the C-Pulse® Heart Assist System for treatment of Class III and ambulatory Class IV heart failure. In August 2016, the Company acquired the business associated with the Aquadex FlexFlow system (herein referred to as the "Aquadex Business") from a subsidiary of Baxter International, Inc. ("Baxter") and refocused its strategy to fully devote its resources on the Aquadex Business.

Recent Developments

Reverse Stock Split
In December 2018, our stockholders approved a reverse split of our outstanding common stock at a ratio in the range of 1-for-2 to 1-for-14 and, in January 2019, our board of directors approved a 1-for-14 reverse split of our outstanding common stock that became effective after trading on January 2, 2019. This reverse stock split did not change the par value of our common stock or the number of common or preferred shares authorized by the Company's Fourth Amended and Restated Certificate of Incorporation. All share and per-share amounts have been retroactively adjusted to reflect the reverse stock split for all periods presented.

Public Offering
On March 12, 2019, we closed on an underwritten public offering of 455,178 shares of common stock, approximately 1.9 million shares of Series G Convertible Preferred Stock, and warrants to purchase approximately 4.7 million shares of common stock, which includes the full exercise of the underwriter's over-allotment option, for gross proceeds of $12.4 million. Net proceeds totaled approximately $11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering.

See Note 4 to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We have adopted various accounting policies to prepare the condensed consolidated financial statements in accordance with accounting principles generally accepted in the United States. (U.S. GAAP). Our most significant accounting policies are disclosed in Note 1 to the consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2018.

The preparation of the condensed consolidated financial statements, in conformity with U.S. GAAP, requires us to make estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Our estimates and assumptions, including those related to stock-based compensation, valuation of equity and debt securities, and income tax reserves are updated as appropriate, which in most cases is quarterly. We base our estimates on historical experience, valuations, or various assumptions that are believed to be reasonable under the circumstances. There have been no material changes to our critical accounting policies and estimates from the information provided in Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations* included in our Annual Report on Form 10-K for the year ended December 31, 2018.

Revenue Recognition: We recognize revenue in accordance with Accounting Standards Codification ("ASC"), Topic 606, *Revenue from Contracts with Customers*, which we adopted effective January 1, 2018. Accordingly, we recognize revenue when our customers obtain control of its products or services, in an amount that reflects the consideration that we expect to receive in exchange for those goods and services. See Note 2 – Revenue Recognition, included in Part I, Item 1 of this Quarterly Report, for additional disclosures.

Accounts Receivable: Our accounts receivable have terms that require payment in 30 days. We did not establish an allowance for doubtful accounts as of June 30, 2019 as we have not experienced any write offs or a deterioration in the aging of our receivables to date and do not expect to experience in the future.

Inventories: Inventories consist of finished goods, raw materials and subassemblies and are recorded as the lower of cost or net realizable value using the first-in-first out method.

Contingent consideration: In connection with the purchase of the Aquadex Business, we had an obligation to pay additional consideration that was contingent upon the occurrence of certain future events (see Note 9 to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q). Contingent consideration was recognized at the acquisition date at $126,000, the estimated fair value of the contingent milestone payments. The fair value of the contingent consideration was remeasured to its estimated fair value at the end of each reporting period, with changes recorded to earnings. During the second quarter of 2019, we deemed the likelihood of the payment of the additional consideration to be remote and determined the fair value of the contingent consideration to be $0. Therefore we reduced the liability to $0 as of June 30, 2019.

Stock-Based Compensation: We recognize all share-based payments to employees and directors, including grants of stock options, warrants and common stock awards in the income statement as an operating expense based on their fair values as established at the grant date. Equity instruments issued to non-employees include common stock awards or warrants to purchase shares of our common stock. These common stock awards or warrants are either fully-vested and exercisable at the date of grant or vest over a certain period during which services are provided. We expense the fair market value of fully vested awards at the time of grant, and of unvested awards over the period in which the related services are received. In accordance with Accounting Standards Update 2018-07, unvested awards are no longer remeasured to fair value until vesting and rather the fair value is established at the grant date consistent with the treatment of employee director awards.

We compute the estimated fair values of stock options and warrants using the Black-Scholes option pricing model and market-based warrants using a Monte Carlo valuation model. Market price at the date of grant is used to calculate the fair value of restricted stock units and common stock awards.

Stock-based compensation expense is based on awards ultimately expected to vest and is reduced for estimated forfeitures except for market-based warrants which are expensed based on the grant date fair value regardless of whether the award vests. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

Loss per share: We compute basic loss per share based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding. The net loss allocable to common stockholders for the six months ended June 30, 2019, reflects a $4.5 million increase for the net deemed dividend to preferred stockholders provided in connection with the close of the March 2019 public offering, representing the intrinsic value of the preferred shares at the time of issuance. Diluted earnings per share is computed based on the net loss allocable to common stockholders for each period divided by the weighted average number of common shares outstanding, increased by the number of additional shares that would have been outstanding had the potentially dilutive common shares been issued, and reduced by the number of shares the Company could have repurchased from the proceeds from issuance of the potentially dilutive shares. Potentially dilutive shares of common stock include warrants, stock options and other stock-based awards granted under stock-based compensation plans. These potentially dilutive shares were excluded from the computation of loss per share as their effect was antidilutive due to our net loss in each of those periods.

Going Concern: Our consolidated financial statements have been prepared and presented on a basis assuming we continue as a going concern. During the years ended December 31, 2018 and 2017, and through June 30, 2019, we incurred losses from operations and net cash outflows from operating activities as disclosed in the condensed consolidated statements of operations and cash flows, respectively. As of June 30, 2019, we had an accumulated deficit of $208.5 million and we expect to incur losses for the immediate future. To date, we have been funded primarily by various debt and equity financings, and although we believe that we will be able to successfully fund our operations, there can be no assurance that we will be able to do so or that we will ever operate profitably. These factors raise substantial doubt about our ability to continue as a going concern through the next twelve months.

We became a revenue generating company only after acquiring the Aquadex Business in August 2016. We expect to incur additional losses in the near-term as we grow the Aquadex Business, including investments in expanding our sales and marketing capabilities, purchasing inventory, manufacturing components, and complying with the requirements related to being a U.S. public company. To become and remain profitable, we must succeed in expanding the adoption and market acceptance of the Aquadex FlexFlow system. This will require us to succeed in training personnel at hospitals and in effectively and efficiently manufacturing, marketing and distributing the Aquadex FlexFlow system and related components. There can be no assurance that we will succeed in these activities, and we may never generate revenues sufficient to achieve profitability.

During 2017, 2018 and 2019, we closed on underwritten public equity offerings for net proceeds of approximately $39.8 million after deducting the underwriting discounts and commissions and other costs associated with the offering. We may be required to seek additional funding to grow our Aquadex Business, which may not be available on terms favorable to us, or at all. We may receive those funds from the proceeds from future warrant exercises, issuances of equity securities, or other financing transactions. Should warrant exercises not materialize or future capital raising be unsuccessful, we may not be able to continue as a going concern. We have made no adjustments relating to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should we not continue as a going concern.

NEW ACCOUNTING PRONOUNCEMENTS

Information regarding new accounting pronouncements is included in Note 1 to the condensed consolidated financial statements included in this Quarterly Report.

FINANCIAL OVERVIEW

We are a medical device company focused on developing, manufacturing and commercializing the Aquadex system for ultrafiltration treatment of patients with fluid overload who have failed diuretic therapy. Activities since inception have consisted principally of raising capital, performing research and development and conducting preclinical and clinical studies. During 2016, we acquired the Aquadex Business and announced that we were halting all clinical evaluations of our prior technology, the C-Pulse System. Since then, our activities have consisted mainly of expanding our sales and marketing capabilities and transferring manufacturing capabilities from Baxter to our facilities in Eden Prairie, Minnesota. As of June 30, 2019, we had an accumulated deficit of $208.5 million and we expect to incur losses for the foreseeable future. To date, we have been funded by public and private equity financings and debt. Although we believe that we will be able to successfully fund our operations, there can be no assurance that we will be able to do so or that we will ever operate profitably.

Results of Operations

Comparison of Three Months Ended June 30, 2019 to Three Months Ended June 30, 2018

Net Sales
(in thousands)

Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Increase (Decrease)	% Change
$ 1,677	$ 1,099	$ 578	52.6%

Revenue is generated mainly from the sale of disposable blood filters and catheters used in conjunction with the Aquadex FlexFlow consoles. We sell primarily in the United States to hospitals and clinics through our direct salesforce. We sell outside of the United States to independent specialty distributors who in turn sell to hospitals and clinics in their geographic regions. The change in net sales compared to the same period of 2018 is driven by the execution of our commercialization strategy which includes continued expansion of our commercial footprint by the hiring of new sales representatives, clinical specialists, and marketing personnel.

Costs and Expenses

Our costs and expenses were as follows:

(in thousands)	Three Months Ended June 30, 2019	Three Months Ended June 30, 2018	Increase (Decrease)	% Change
Cost of goods sold	$ 835	$ 870	$ (35)	(4.0)%
Selling, general and administrative	$ 3,973	$ 3,765	$ 208	5.5%
Research and development	$ 1,297	$ 643	$ 654	101.7%

Cost of Goods Sold

In connection with the acquisition of the Aquadex Business, we entered into a manufacturing and supply agreement with Baxter. We provided notice to Baxter to cease the manufacturing of the Aquadex product line in 2017, and we began transitioning activities in house. As part of the manufacturing transition, we agreed to continue to purchase inventory from Baxter through February 1, 2018. We began manufacturing our products in house in the fourth quarter of 2017, and in August 2018, we announced that the transfer of all manufacturing activities was complete.

Cost of sales in 2018 reflects the agreed-upon price paid to Baxter for the manufacturing of the disposables and consoles, as well as startup costs associated with the transfer of manufacturing activities to our facilities in Eden Prairie, Minnesota. In the first quarter of 2019, we transitioned to selling our internally manufactured inventory, driving the improvement in our gross margins. In 2019, we expect our gross margins will continue to improve as volumes increase and we achieve larger efficiencies of scale.

Selling, General and Administrative

The increase in selling, general and administrative expense reflect primarily on-going investment in our commercial organization as we continue to expand our outreach in the field with incremental sales specialists, clinical specialists and marketing support. Our general and administrative costs have remained consistent with the prior year.

As we continue to increase our distribution footprint, we expect that our selling expenses will continue to increase in future quarters, and that general and administrative expenses will remain consistent to the current quarter.

Research and Development

The increase in research and development expenses relate to investments we are making to improve the functionality of our Aquadex system, including console software updates and catheter improvements. We expect that our research and development expenditures will increase slightly in future quarters as we continue to make improvements to our product offerings.

Comparison of Six Months Ended June 30, 2019 to Six Months Ended June 30, 2018

Net Sales

(dollars in thousands)

Six Months Ended June 30, 2019	Six Months Ended June 30, 2018	Increase (Decrease)	% Change
$ 2,892	$ 2,136	$ 756	35.4%

Revenue is generated mainly from the sale of disposable blood filters and catheters used in conjunction with our Aquadex FlexFlow consoles. We sell primarily in the United States to hospitals and clinics through our direct salesforce. We sell outside of the United States to independent specialty distributors who in turn sell to hospitals and clinics in their geographic regions. The change in net sales compared to the same period of 2018 is driven by the execution of our commercialization strategy which includes continued expansion of our commercial footprint by the hiring of new sales representatives, clinical specialists, and marketing personnel.

Costs and Expenses

Our costs and expenses were as follows:

(dollars in thousands)	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018	Increase (Decrease)	% Change
Cost of goods sold	$ 1,447	$ 1,771	$ (324)	(18.3)%
Selling, general and administrative	$ 7,991	$ 7,776	$ 215	2.8%
Research and development	$ 2,607	$ 1,122	$ 1,485	132.4%

Cost of Goods Sold

In connection with the acquisition of the Aquadex Business, we entered into a manufacturing and supply agreement with Baxter. We provided notice to Baxter to cease the manufacturing of the Aquadex product line in 2017, and we began transitioning activities in house. As part of the manufacturing transition, we agreed to continue to purchase inventory from Baxter through February 1, 2018. We began manufacturing our products in house in the fourth quarter of 2017, and in August 2018, we announced that the transfer of all manufacturing activities was complete.

Cost of sales in 2018 reflects the agreed-upon price paid to Baxter for the manufacturing of the disposables and consoles, as well as startup costs associated with the transfer of manufacturing activities to our facilities in Eden Prairie, Minnesota. In the first quarter of 2019, we transitioned to selling our internally manufactured inventory, driving the improvement in our gross margins. In 2019, we expect our gross margins will continue to improve as volumes increase and we achieve larger efficiencies of scale.

Selling, General and Administrative

The increase in selling, general and administrative expense reflect primarily on-going investment in our commercial organization as we continue to expand our outreach in the field with incremental sales specialists, clinical specialists and marketing support. Our general and administrative costs have remained consistent to the prior year.

As we continue to increase our distribution footprint, we expect that our selling expenses will continue to increase in future quarters, and that general and administrative expenses will remain consistent to the current quarter.

Research and Development

The increase in research and development expenses relate to investments we are making to improve the functionality of our Aquadex system, including console software updates and catheter improvements. We expect that our research and development expenditures will increase slightly in future quarters as we continue to make improvements to our product offerings.

Liquidity and Capital Resources

Sources of Liquidity

We have funded our operations primarily through cash on hand and a series of equity and debt issuances.

On July 3, 2018, we closed on an underwritten public offering of 181,941 shares of common stock, for gross proceeds of $5.4 million. Net proceeds totaled approximately $4.6 million after deducting the underwriting discounts and commissions and other costs associated with the offering. See Note 4 – Equity, to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

On March 12, 2019, we closed on an underwritten public offering for net proceeds totaling approximately $11.0 million after deducting the underwriting discounts and commissions and other costs associated with the offering, which included the full exercise of the underwriter’s over-allotment option to purchase additional shares and warrants. In connection with this offering, we issued a total of 455,178 shares of common stock, approximately 1.9 million shares of Series G convertible preferred stock and warrants to purchase approximately 4.7 million shares of common stock. See Note 4 – Equity, to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

On August 5, 2016, we entered into a loan agreement with Silicon Valley Bank for proceeds of up to $5.0 million, including a $1.0 million revolving line of credit and a $4.0 million term loan. The term loan expired unused on November 30, 2016 and the term loan is no longer available to be drawn. Under the revolving line, we may borrow the lesser of $1 million or 80% of our eligible accounts (subject to customary exclusions), minus the outstanding principal balance of any advances under the revolving line. Advances under the revolving line, if any, will accrue interest at a floating per annum rate equal to 1.75% or 1.0% above the prime rate, depending on liquidity factors. The loan agreement contains customary representations, as well as customary affirmative and negative covenants. Our obligations under the new loan agreement are secured by a security interest in our assets, excluding intellectual property and certain other exceptions. We are subject to a negative pledge covenant with respect to our intellectual property. Advances under the revolving line are subject to various conditions precedent, including our compliance with financial covenants relating to net liquidity relative to monthly cash burn. The revolving line of credit expires on March 31, 2020. We had no borrowings outstanding under the Silicon Valley Bank facility as of June 30, 2019 or December 31, 2018.

As of June 30, 2019, and December 31, 2018, cash and cash equivalents were $7.4 million and $5.5 million, respectively. Prior to our acquisition of the Aquadex Business in August 2016, we did not have a product approved for commercial sale and focused our resources on developing, manufacturing, and commercializing our C-Pulse System. Our business strategy and ability to fund our operations in the future depends in part on our ability to grow our Aquadex Business by establishing a sales force, selling our products to hospitals and other healthcare facilities and controlling costs. We believe that our cash on hand and proceeds from future warrant exercises will fund our operations until we reach profitability, although we may need to seek financing in the future.

Cash Flows from Operating Activities

Net cash used in operating activities was $8.9 million and $8.5 million for the six months ended June 30, 2019 and 2018, respectively. The net cash used in each of these periods primarily reflects the net loss for those periods, offset in part by stock-based compensation, depreciation and amortization, and the effects of changes in operating assets and liabilities.

Cash Flows from Investing Activities

Net cash used in investing activities was $158,000 and $121,000 for the six months ended June 30, 2019 and June 30, 2018, respectively. The majority of cash used in investing activities was for the purchase of manufacturing, laboratory and office equipment.

Cash Flows from Financing Activities

As described above, net cash provided by financing activities was $11.0 million for the six months ended June 30, 2019. There was no net cash provided by financing activities during the six months ended June 30, 2018.

Capital Resource Requirements

As of June 30, 2019, we did not have any material commitments for capital expenditures.

Off-Balance Sheet Arrangements

On August 5, 2016, we entered into an asset purchase agreement for the Aquadex Business with Baxter, whereby we agreed that, if we dispose of any of the acquired assets for a price that exceeds $4.0 million within three years of the closing, we will pay Baxter 40% of the amount of such excess. This commitment expired on August 6, 2019. In addition, we also agreed that, if shares of our common stock cease to be publicly traded on the Nasdaq Capital Market, Baxter has the option to require us to repurchase, in cash, all or any part of the common shares held by Baxter at a price equal to their fair market value, as determined by a third-party appraiser.

Except as disclosed above, we have no off-balance sheet transactions, arrangements, obligations (including contingent obligations), or other relationships with unconsolidated entities or other persons that have, or may have, a material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Forward-Looking Statements and Risk Factors

Certain statements in this Quarterly Report on Form 10-Q are forward-looking statements within the meaning of the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (“Exchange Act”), that are based on management’s beliefs, assumptions and expectations and information currently available to management. All statements that address future operating performance, events or developments that we expect or anticipate will occur in the future are forward-looking statements, including without limitation, our ability to execute on our strategic realignments, our post-market clinical data collection activities, benefits of our products to patients, our expectations with respect to product development and commercialization efforts, our ability to increase market and physician acceptance of our products, potentially competitive product offerings, the possibility that we may be unable to raise sufficient funds necessary for our anticipated operations, intellectual property protection, our ability to integrate acquired businesses, our expectations regarding anticipated synergies with and benefits from acquired businesses and other risks and uncertainties described in our filings with the SEC. In some cases, you can identify forward-looking statements by the following words: “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “ongoing,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. Management believes that these forward-looking statements are reasonable as and when made. However, you should not place undue reliance on forward-looking statements because they speak only as of the date when made. We undertake no obligation to revise any forward-looking statements in order to reflect events or circumstances that might subsequently arise. Forward-looking statements are subject to a number of risks and uncertainties that could cause actual events to adversely differ from the expectations indicated in these forward-looking statements, including without limitation, the risks and uncertainties described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, this Quarterly Report and in other reports filed thereafter with the SEC, which risk factors we may update from time to time. We operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for us to predict all risk factors and uncertainties. CHF Solutions may not actually achieve the plans, projections or expectations disclosed in forward-looking statements, and actual results, developments or events could differ materially from those disclosed in the forward-looking statements. Forward-looking statements are subject to a number of risks and uncertainties, including without limitation, the possibility that regulatory authorities do not accept our application or approve the marketing of our products, the possibility we may be unable to raise the funds necessary for the development and commercialization of our products, and those described in our filings with the SEC.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer (together, the *"Certifying Officers"*), as appropriate, to allow for timely decisions regarding required disclosure.

In designing and evaluating disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance of achieving the desired objectives. Also, the design of a control system must reflect the fact that there are resource constraints and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. The design of any system of controls is based, in part, upon certain assumptions about the likelihood of future events and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

As of June 30, 2019, the end of the period covered by this report, we conducted an evaluation, under the supervision and with the participation of management, including the Certifying Officers, of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the *"Exchange Act"*). Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their stated objectives. Based on their evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at a reasonable assurance level as of June 30, 2019.

Changes in Internal Controls over Financial Reporting

There was no change in our internal control over financial reporting during our most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are not currently subject to any material legal proceedings.

ITEM 1A. RISK FACTORS

You should carefully consider the risks and uncertainties we describe in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, and in other reports filed thereafter with the SEC, before deciding to invest in or retain shares of our common stock. We do not believe there are any material changes to the risk factors discussed in Item 1A. "Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

On May 30, 2019, the Company granted a market-based warrant to a consultant in exchange for investor relations services. The warrant represents the right to acquire up to 100,000 shares of the Company's common stock at an exercise price $3.18 per share, the closing stock price of the Company's common shares on May 30, 2019. The warrant is subject to a vesting schedule based on the Company achieving certain market stock prices within a specified period of time. The warrant expires on May 30, 2024. This issuance was made pursuant to the exemption from registration contained in Section 4(a)(2) of the Securities Act.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

On May 23, 2019, the board of directors adopted the Sixth Amendment (the "Sixth Amendment") to New-Hire Equity Incentive Plan (the "New-Hire Plan"), increasing the aggregate number of shares of common stock that may be issued pursuant to equity incentive awards under the New-Hire Plan from 38,836 (as adjusted to reflect the reverse stock split implemented by the Company on January 2, 2019) to 288,836 shares. The Company believes that the increase in the shares reserved under the New-Hire Plan is necessary to allow it to attract qualified employees to continue the commercialization the Aquadex FlexFlow System. The foregoing description of the terms of the Sixth Amendment is qualified in its entirety by reference to the actual terms of the Sixth Amendment, which is attached hereto as Exhibit 10.2 and is incorporated herein by reference.

ITEM 6. EXHIBITS

The exhibits filed as part of this Quarterly Report on Form 10-Q are listed in the Exhibit Index below.

Exhibit Index
CHF Solutions, Inc.
Form 10-Q for the Quarterly Period Ended June 30, 2019

		Incorporated By Reference					
Exhibit Number	Exhibit Description	Form	File Number	Date of First Filing	Exhibit Number	Filed Herewith	Furnished Herewith
3.1	Fourth Amended and Restated Certificate of Incorporation	10	001-35312	February 1, 2012	3.1		
3.2	Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation	8-K	001-35312	January 13, 2017	3.1		
3.3	Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation	8-K	001-35312	May 23, 2017	3.1		
3.4	Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation	8-K	001-35312	October 12, 2017	3.1		
3.5	Form of Certificate of Designation of Series A Junior Participating Preferred Stock	8-K	001-35312	June 14, 2013	3.1		
3.6	Form of Certificate of Designation of Preferences, Rights and Limitations of Series F Convertible Preferred Stock	S-1/A	333-221010	November 17, 2017	3.7		
3.7	Certificate of Amendment to Fourth Amended and Restated Certificate of Incorporation, as amended, of CHF Solutions, Inc	8-K	001-35312	January 2, 2019	3.1		
3.8	Form of Certificate of Designation of Preferences, Rights and Limitations of Series G Convertible Preferred Stock	S-1/A	333-209102	February 25, 2019	3.9		
3.9	Second Amended and Restated Bylaws	8-K	001-35312	May 23, 2017	3.2		
4.1	Common Stock Purchase Warrant, dated May 30, 2019, between CHF Solutions, Inc. and Redington, Inc.					X	
10.1	Offer Letter, by and between, CHF Solutions, Inc. and Nestor Jaramillo, dated May 7, 2019†	10-Q	001-35312	May 9, 2019	10.5		
10.2	Sixth Amendment to New-Hire Equity Incentive Plan†					X	
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X	

Exhibit Number	Exhibit Description	Incorporated By Reference			Exhibit Number	Filed Herewith	Furnished Herewith
		Form	File Number	Date of First Filing			
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X	
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002						X
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002						X
101.INS	XBRL Instance Document					X	
101.SCH	XBRL Taxonomy Extension Schema Document					X	
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X	
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X	
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X	
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X	

† Indicates management compensatory plan, contract or arrangement

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 thereunto duly authorized.

		CHF Solutions, Inc.
Date: August 8, 2019	By:	/s/ John L. Erb
		John L. Erb Chief Executive Officer and Chairman of the Board (principal executive officer)
Date: August 8, 2019	By:	/s/ Claudia Drayton
		Claudia Drayton Chief Financial Officer (principal financial officer)

Exhibit 4.1

COMMON STOCK PURCHASE WARRANT

CHF SOLUTIONS, INC.

#W-1	**Warrant to Purchase up to**
Issue Date: May 30, 2019	**100,000 Shares of Common Stock**

THIS IS TO CERTIFY that, for value received, the receipt and sufficiency of which is hereby acknowledged, Redington, Inc. (the "Holder") is entitled, subject to the terms and conditions hereinafter set forth below, to subscribe for and purchase from CHF Solutions, Inc., a Delaware corporation (the "Company") up to one hundred thousand (100,000) shares (as subject to adjustment hereunder, the "Warrant Shares") of the Company's common stock, par value $0.0001 per share (the "Common Stock"), in accordance with the vesting schedules below, each of which are subject to the public announcement by the Company of the receipt by the Company from the U.S. Food and Drug Administration of clearance or approval of a modification to the product label for the Aquadex FlexFlow system (or the same or similar product with a different name) to include pediatric patients ("FDA Approval"), by surrendering to the Company this Warrant Certificate, together with a duly completed and executed Notice of Exercise (as hereinafter defined).

Section 1. Definitions. In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings indicated in this Section 1:

"Bid Price" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported in the "Pink Sheets" published by OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holder and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company;

"Business Day" means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close;

"Capital Reorganization" means: (i) any reclassification of the Common Stock at any time outstanding; (ii) any change of the Common Stock at any time outstanding into other shares or securities; (iii) any sale of all of the Common Stock at any time outstanding to a third party; or (iv) any consolidation, amalgamation or merger of the Company with or into any other corporation or other entity (other than a consolidation, amalgamation or merger which does not result in a reclassification of the outstanding Common Stock or a change of the Common Stock into other shares or securities) and, for the avoidance of doubt, the term "Capital Reorganization" shall not include a Share Reorganization;

"Notice of Exercise" means the form of notice annexed hereto as Schedule A;

"Share Reorganization" has the meaning ascribed thereto in Section 8(b);

"Trading Day" means a day on which the Common Stock is traded on a Trading Market;

"Trading Market" means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, OTCQB or OTCQX (or any successors to any of the foregoing);

"Transfer Agent" means American Stock Transfer & Trust Company, the current transfer agent of the Company, with a mailing address of 59 Maiden Lane, New York, New York and a facsimile number of 718-236-4588, and any successor transfer agent of the Company.

"VWAP" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported in the "Pink Sheets" published by OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holder and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company; and

"Warrant" means the common share purchase warrant represented by this Warrant Certificate.

Section 2. Exercise Price. The Warrant represented by this Warrant Certificate entitles the Holder, to the extent the Warrant has vested pursuant to Section 3 below, to subscribe for and purchase up to 100,000 shares of Common Stock at a price per share equal to $3.18, the closing price of the Company's Common Stock on May 30, 2019 (the "Exercise Price"), which price shall be subject to adjustment as hereinafter provided.

Section 3. Vesting of Warrants.

(a) Vesting With FDA Approval. The shares of Common Stock subject to the Warrant will vest and become exercisable in the amounts listed in the table below upon the Company's determination, in its sole discretion that the applicable Share Price Targets as set forth in the table below (each a "Share Price Target" and, together, the "Share Price Targets") have been achieved on ten (10) of any thirty (30) consecutive trading days (a "Trading Period") within the 100-day period following the announcement by the Company of the FDA Approval (the "FDA Approval Performance Period").

Number of Shares	**Share Price Target**
25,000	the closing price per share of the Common Stock on the Trading Market is at least $7.50
25,000	the closing price per share of the Common Stock on the Trading Market is at least $8.50
25,000	the closing price per share of the Common Stock on the Trading Market is at least $9.50
25,000	the closing price per share of the Common Stock on the Trading Market is at least $10.50

(b) Vesting Without FDA Approval before December 31, 2019. The shares of Common Stock subject to the Warrant will vest and become exercisable in the amounts listed in the table below upon the Company's determination, in its sole discretion that the applicable Share Price Targets during the Trading Period within the 18-months following the date of this Warrant Certificate have been achieved (the "No FDA Approval Performance Period").

Number of Shares	Share Price Target
25,000	the closing price per share of the Common Stock on the Trading Market is at least 50% above the Exercise Price during a Trading Period
25,000	the closing price per share of the Common Stock on the Trading Market is at least 100% above the Exercise Price during a Trading Period
25,000	the closing price per share of the Common Stock on the Trading Market is at least 150% above the Exercise Price during a Trading Period
25,000	the closing price per share of the Common Stock on the Trading Market is at least 200% above the Exercise Price during a Trading Period

For the avoidance of doubt, for purposes of vesting in a number of shares, a Share Price Target shall not be deemed to occur more than once and accordingly, the maximum amount of shares that may vest pursuant to either schedule above will be 100,000 shares, however, more than one Share Price Target can be achieved based on the closing stock prices within a Trading Period. The Warrant to acquire any shares relating to Share Price Targets that are not achieved during the FDA Approval Performance Period or No FDA Approval Performance Period, as applicable, will be immediately forfeited effective as of the last day of the FDA Approval Performance Period or No FDA Approval Performance Period, as applicable, and the Holder will have no right, title or interest to acquire these shares following the FDA Approval Performance Period or No FDA Approval Performance Period, as applicable.

Section 4. Expiration of Warrants. All rights under this Warrant Certificate which have not been exercised shall cease and this Warrant Certificate shall be wholly void and of no valid or binding effect at 5:00 PM (Eastern Standard Time) on May 30, 2024 ("Termination Date").

Section 5. Exercise of Warrants.

(a) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the Warrant Shares to the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Notice of Exercise if such Notice of Exercise is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered after the close of "regular trading hours" on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

In connection with clause (ii) in (A) above, upon written request of the Company, the Holder will provide evidence reasonably acceptable to the Company of the Bid Price of the Common Stock on the principal Trading Market that was reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Notice of Exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act of 1933, as amended, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised.

Without limiting the rights of a Holder to receive Warrant Shares on a "cashless exercise" and without limiting the liquidated damages provision in Section 2(b)(i), in no event will the Company be required to net cash settle a Warrant exercise.

Notwithstanding anything herein to the contrary, on the Termination Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(a).

(b) Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) two (2) Trading Days after the delivery to the Company or the Warrant Agent of the Notice of Exercise, (ii) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company, and (iii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company or the Transfer Agent of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

(c) Unexercised Warrants. In the event that the Warrant is exercised for less than the maximum number of shares of Common Stock which may be purchased pursuant to the exercise thereof, the Company shall, upon the surrender of this Warrant Certificate in accordance with the terms herein, issue a replacement warrant certificate representing the right to subscribe for the remaining number of shares of Common Stock which the Holder is entitled to subscribe for (which if issued after the FDA Approval Performance Period or No FDA Approval Performance Period, as applicable, shall represent only the remaining number of such shares that have vested and not been exercised).

Section 6. Not a Stockholder. For the avoidance of doubt, nothing in this Warrant Certificate or in the holding of the Warrant evidenced hereby shall be construed as conferring upon the Holder any right or interest whatsoever as a stockholder of the Company.

Section 7. No Fractional Shares. Notwithstanding any provisions to the contrary herein, the Company shall not be required to issue any fractional shares in the capital of the Company in connection with any exercise of the Warrant. If the calculation of the number of shares of Common Stock issuable upon such exercise results in a number which includes a fraction of whole shares, the Company shall issue to the Holder the largest number of whole shares into which the Warrant is exercisable and make a cash payment to the Holder in lieu of the fractional share in an amount determined in good faith by the Company's board of directors.

Section 8. Adjustment of Subscription Rights.

(a) Capital Reorganization. If at any time while all or any portion of the Warrant remains outstanding there shall be a Capital Reorganization and the Holder exercises the Warrant after the effective date of such Capital Reorganization, the Holder shall be entitled to receive, in lieu of the number of shares of Common Stock to which it was theretofore entitled to receive upon such exercise, the kind and amount of securities or property (including cash) which the Holder would have been entitled to receive as a result of such Capital Reorganization if, on the effective date thereof immediately prior to the Capital Reorganization, the Holder had been the registered holder of the number of shares of Common Stock to which the Holder was theretofore entitled to receive upon exercise of the Warrant.

(b) Share Reorganization. If at any time while all or any portion of the Warrant remains outstanding the Company shall (i) subdivide the Common Stock then outstanding into a greater number of shares of Common Stock or (ii) consolidate the Common Stock then outstanding into a lesser number of shares of Common Stock (each such event, a "Share Reorganization"), then:

(i) the Exercise Price will be adjusted on the effective date of the Share Reorganization by multiplying the Exercise Price in effect immediately prior to such date by a fraction (A) the numerator of which is the number of shares of Common Stock outstanding immediately before giving effect to the Share Reorganization and (B) the denominator of which is the number of shares of Common Stock outstanding immediately after giving effect to the Share Reorganization; and

(ii) concurrent with each adjustment of the Exercise Price in accordance with subparagraph 8(b)(i), the number of shares of Common Stock the Holder shall be entitled to acquire on any exercise of the Warrant shall be adjusted to that number of shares of Common Stock obtained by multiplying the number of shares of Common Stock the Holder was entitled to acquire upon the exercise of the Warrant immediately prior to such adjustment by a fraction (A) the numerator of which is the Exercise Price in effect immediately prior to such adjustment and (B) the denominator of which is Exercise Price resulting from such adjustment.

(c) Dividend or Distributions Payable in Common Stock. If at any time while all or any portion of the Warrant remains outstanding the Company shall pay a dividend or otherwise make a distribution on the Common Stock or any other securities of the Company payable in Common Stock, then:

(i) the Exercise Price will be adjusted by multiplying the Exercise Price in effect immediately prior to such date by a fraction (A) the numerator of which is the number of shares of Common Stock outstanding immediately before giving effect to such dividend or distribution and (B) the denominator of which is the number of shares of Common Stock outstanding immediately after giving effect to such dividend or distribution; and

(ii) concurrent with each adjustment of the Exercise Price in accordance with subparagraph 8(c)(i), the number of shares of Common Stock the Holder shall be entitled to acquire on any exercise of the Warrant shall be adjusted to that number of shares of Common Stock obtained by multiplying the number of shares of Common Stock the Holder was entitled to acquire upon the exercise of the Warrant immediately prior to such adjustment by a fraction (A) the numerator of which is the Exercise Price in effect immediately prior to such adjustment and (B) the denominator of which is Exercise Price resulting from such adjustment.

Any adjustment made pursuant to this Section 8(c) shall be made on the payment date for the applicable dividend or distribution; provided, however, that such adjustment shall be retroactive to the record date for such dividend or distribution.

(d) Rules Regarding Adjustment of Subscription Rights.

(i) The adjustments provided for in this Section 8 are cumulative and shall be made successively whenever an event referred to herein shall occur.

(ii) In the event of any dispute arising with respect to the adjustments provided in this Section 8, such dispute will, absent manifest error, be conclusively resolved by a firm of certified public accountants (the costs of whom will be borne by the Company) appointed by the Company (who may be the Company's auditors).

(iii) As a condition precedent to the taking of any action which would require any adjustment pursuant to this Section 8, the Company will take any corporate action which may, in the opinion of counsel, be necessary in order that the securities to which the Holder is entitled on the full exercise of the Warrant shall be available for such purpose and that such shares may be validly and legally issued as fully paid and non-assessable shares.

(iv) Any adjustment pursuant to this Section 8 is subject to the prior approval, if required, of a Trading Market or regulatory authority having jurisdiction over the Company.

(v) As promptly as reasonably practicable after the occurrence of any event which requires an adjustment pursuant to this Section 8, the Company will deliver a written notice to the Holder specifying in reasonable detail the nature of the event requiring the adjustment and the amount of the adjustment necessitated by such event.

Section 9. Legends. Holder acknowledges that, to the extent applicable, each certificate evidencing any shares of Common Stock or other securities issued upon exercise of this Warrant shall be endorsed with the legend substantially in the form set forth below, as well as any additional legend as may be from time to time imposed or required by the Company or applicable securities laws:

> "THE SHARES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED, PLEDGED, OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER SUCH ACT, OR UNLESS THE COMPANY HAS RECEIVED AN OPINION OF COUNSEL OR OTHER EVIDENCE, SATISFACTORY TO THE COMPANY AND ITS COUNSEL, THAT SUCH REGISTRATION IS NOT REQUIRED."

Section 10. Mutilated or Missing Warrant Certificates. Upon receipt of evidence satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant Certificate and, in the case of any such loss, theft or destruction, upon delivery of a bond or indemnity satisfactory to the Company, acting reasonably, or, in the case of any such mutilation, upon surrender of this Warrant Certificate, the Company will issue to the Holder a new certificate of like tenor in respect of the Warrant represented hereby.

Section 11. Governing Law. This Warrant Certificate shall be governed by and construed in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of Delaware, without giving effect to any choice of law or conflict of law provision or rule.

Section 12. Severability. If any one or more of the provisions or parts thereof contained in this Warrant Certificate should be or become invalid, illegal or unenforceable in any respect in any jurisdiction, the remaining provisions or parts thereof contained herein shall be and shall be conclusively deemed to be, as to such jurisdiction, severable therefrom and (a) the validity, legality or enforceability of such remaining provisions or parts thereof shall not in any way be affected or impaired by the severance of the provisions or parts thereof severed and (b) the invalidity, illegality or unenforceability of any provision or part thereof contained in this Warrant Certificate in any jurisdiction shall not affect or impair such provision or part thereof or any other provisions of this Warrant Certificate in any other jurisdiction.

Section 13. Headings. The headings of the sections, subsections, paragraphs, subparagraphs and clauses of this Warrant Certificate have been inserted for convenience of reference only and do not define, limit, alter or enlarge the meaning of any provision of this Warrant Certificate.

Section 14. Numbering of Articles, etc. Unless otherwise stated, a reference herein to a numbered or lettered Section, subparagraph or Schedules refers to the section, subparagraph or schedule bearing that number or letter in this Warrant Certificate.

Section 15. Words Importing the Singular. Whenever used in this Warrant Certificate, words importing the singular number only shall include the plural and vice versa.

Section 16. Day not a Business Day. In the event that any day on or before which any action is required to be taken hereunder is not a Business Day, then such action shall be required to be taken on or before the requisite time on the next succeeding day that is a Business Day. If the payment of any amount is deferred for any period, then such period shall be included for purposes of the computation of any interest payable hereunder.

Section 17. Binding Effect. This Warrant Certificate and all of its provisions shall inure to the benefit of the Holder and its successors and permitted assigns and shall be binding upon the Company and its successors and permitted assigns.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

CHF SOLUTIONS, INC.

By: /s/ John Erb
Name: John Erb
Title: CEO and Chairman of the Board

SCHEDULE A
NOTICE OF EXERCISE

(to be signed only upon exercise of this Warrant)

TO: CHF SOLUTIONS, INC.

(1) The undersigned hereby elects to purchase ________ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

[ ] in lawful money of the United States; or

[ ] if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 5(a), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 5(a).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

____

The Warrant Shares shall be delivered to the following DWAC Account Number:

____

____

____

[SIGNATURE OF HOLDER]

Name of Investing Entity: ______________________________

Signature of Authorized Signatory of Investing Entity: ______________________________

Name of Authorized Signatory: ______________________________

Title of Authorized Signatory: ______________________________

Date: ______________________________

* Signature must conform exactly with the name of the registered owner on the Warrant Certificate included herewith.

Exhibit 10.2

SIXTH
AMENDMENT TO THE
CHF SOLUTIONS, INC.
NEW-HIRE EQUITY INCENTIVE PLAN

The CHF Solutions, Inc. New-Hire Equity Incentive Plan (the “Plan”) is hereby amended in the following respects, effective May 23, 2019, in accordance with Section 2(b)(vi) of the Plan.

The first sentence of Section 3(a) of the Plan is deleted in its entirety and replaced with the following sentence:

> “Subject to the provisions of Section 9 relating to adjustments upon changes in stock, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards after the Effective Date shall not exceed, in the aggregate, 288,836 shares (the ***“Share Reserve”***).”;

Exhibit 31.1

CHIEF EXECUTIVE OFFICER'S 302 CERTIFICATION

I, John L. Erb, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CHF Solutions, Inc. for the quarterly period ended June 30, 2019;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 8, 2019

/s/ John L. Erb

John L. Erb
Chief Executive Officer

Exhibit 31.2

CHIEF FINANCIAL OFFICER'S 302 CERTIFICATION

I, Claudia Drayton, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of CHF Solutions, Inc. for the quarterly period ended June 30, 2019.

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 8, 2019

/s/ Claudia Drayton

Claudia Drayton
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of CHF Solutions, Inc. (the ***"Company"***) on Form 10-Q for the quarterly period ended June 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the ***"Report"***), I, John L. Erb, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 8, 2019

/s/ John L. Erb
John L. Erb
Chief Executive Officer

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of CHF Solutions, Inc. (the ***"Company"***) on Form 10-Q for the quarterly period ended June 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the ***"Report"***), I, Claudia Drayton, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 8, 2019

/s/ Claudia Drayton

Claudia Drayton
Chief Financial Officer