



# Corporate Presentation

(NASDAQ: CHFS)  
February 2018



# Forward Looking Statement

This presentation contains forward-looking statements. All forward-looking statements are management's present expectations of future events and are subject to a number of risks and uncertainties. Various factors could cause actual results to differ materially from these statements including our ability to execute on our strategic realignment and to grow our Aquadex business, 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, intellectual property protection, our expectations regarding anticipated synergies with and benefits of the Aquadex business, and the other risks set forth under the caption "Risk Factors" and elsewhere in our periodic and other reports filed with the U.S. Securities and Exchange Commission, including our Annual Report or Form 10-K for the fiscal year ended December 31, 2016. We are providing this information as of the date of this presentation and do not undertake to update any forward-looking statements contained in this presentation as a result of new information, future events or otherwise.

Although the Company believes that the forward-looking statements are reasonable and based on information currently available, it can give no assurances that the Company's expectations are correct. All forward looking statements are expressly qualified in their entirety by this cautionary statement.

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# Fluid Overload is the Predominant Cause of Heart Failure Hospitalization in the U.S.

Heart Failure symptoms caused by fluid overload is a significant burden on the U.S. Healthcare System, resulting in:

- 1 million people in the US are admitted annually to the hospital for heart failure<sup>1</sup>
- 90% of these admissions are due to fluid overload<sup>2</sup>
- Costing the U.S. approximately \$13 billion each year<sup>3</sup>

1. CMS Provider Utilization and Payment 100% Coverage IPPS.

2. Costanzo MR, et al. *J Am Coll Cardiol*. 2007 Feb 13; 49(6): 675-683

3. Risk Manag Healthcare Policy May 2017

# 90% of Hospital Readmissions Due to Heart Failure

In 2012 the Affordable Care Act instituted the Hospital Readmission Reduction Program

- **Requirement:** CMS to reduce payments to hospitals with excess readmissions
- **Penalty:** hospitals can lose  $\leq 3\%$  of Medicare reimbursement
- **2017 Update** from Journal American Medical Association (JAMA):
  - **decrease in heart failure related readmissions but increase in 30-day and 1 year mortality rates**

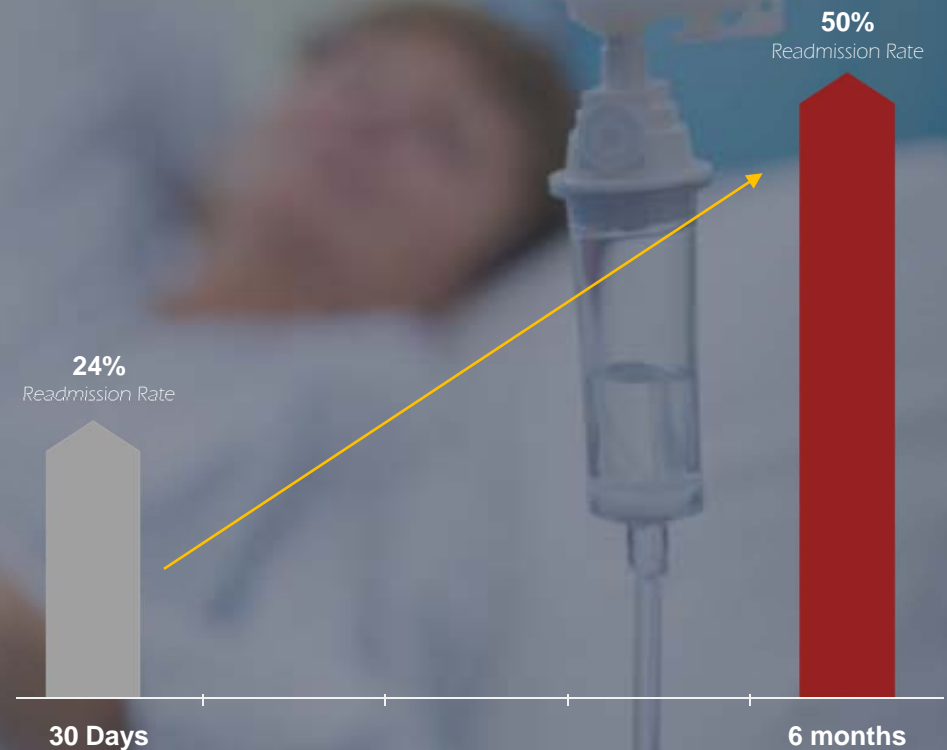
†Readmissions Reduction Program (HRRP). Centers for Medicare & Medicaid Services website. Updated April 18, 2016. Accessed May 25, 2016.  
Journal of the American Medical Association (JAMA), November 2017



# Fluid Overload in HF Patients is an Expensive and Often Recurrent Problem

Recurrent fluid overload in heart failure is associated with worse outcomes independent of age and renal function

- 24% of patients are readmitted within 30 days of hospital release
- 50% of patients are readmitted within 6 months of hospital release
- Annual costs of CHF related hospitalizations = \$13 billion



Sources: Ross JS, et al. *Circ Heart Fail*. 2010 Jan; 3(1): 97-103.  
Desai AS, Stevenson LW. *Circulation*. 2012 Jul 24; 126(4): 501-506

# Diuretics are the Standard of Care, but Fail to Provide Optimal Outcomes in Many Patients

- 40% of patients will show diuretic resistance (“failure”) and 68% show sub-optimal response source: \*\*Testani, Circ Heart Failure, 2016;9:e002370
- Worsening heart failure with increased mortality after discharge
- Insufficient symptom relief, such as persistent congestion
- Increase in re-hospitalization rates
- Risk of electrolyte imbalance (i.e. low magnesium and low potassium)

Costanzo MR, et al., J Am Coll Cardiol., 2017; 69: 2428-45

# The Solution to this Un-Met Need: Aquadex FlexFlow

- Removes nearly 40% more fluid in patients than conventional diuretic drug therapy over the same period of time <sup>2</sup>
  - Restores fluid/electrolyte balance [by removing fluid and sodium]
- **At 90 days, patients have a 53% reduction in the risk of rehospitalization than those treated solely with diuretics <sup>1</sup>**
- Fewer re-hospitalization days due to cardiovascular event <sup>3</sup>

1. Costanzo MR, et al. *J Am Coll Cardiol.* 2007 Feb 13; 49(6): 675-683.

2. Bart BA, et. al., *Am Coll Cardiol.*, 2005;46:2043– 6

3. Costanzo MR, et. al., *J Am Coll Cardiol.*, 2005;46:2047–51.

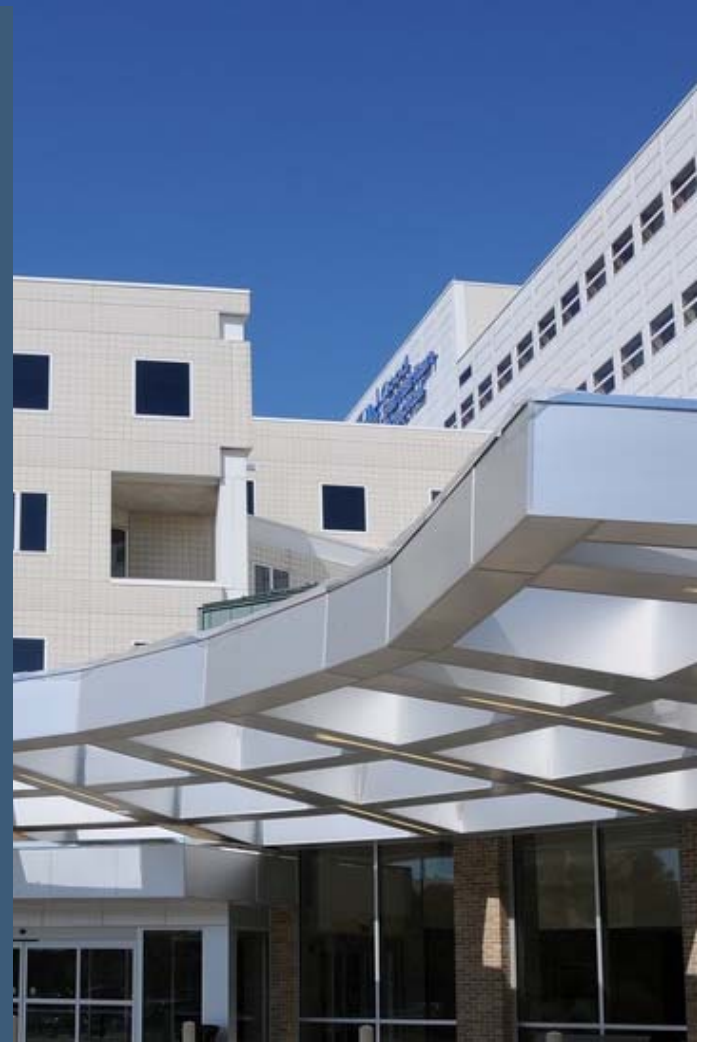
# Compelling Clinical Results Demonstrate the Potential of Aquadex FlexFlow

Good Samaritan Hospital: A Single Center Experience

## Independent study of 67 heart failure patients who received Aquapheresis:

- No 30-day readmits for volume overload
- Length of Stay when started within 24 hours was 2.2 days, compared to national average of 5.9 days
- Readmission rate from before Aquapheresis down from 12% to 4% the year prior
- Average of 5.7 liters removed per patient

\*Data presented at the National Teaching Institute & Critical Care Exposition (NTI) in Chicago, IL on May 5-8, 2008. Results may vary.





# Clinical Guidelines Support Use of Ultrafiltration

## **HFSA - Heart Failure Society Of America**

Ultrafiltration may be considered in lieu of diuretics

## **ESC / HFA - European Society of Cardiology and Heart Failure Association**

Venovenous isolated ultrafiltration is sometimes used to remove fluid in patients with HF, although is usually reserved for those unresponsive or resistant to diuretics

## **CCS - Canadian Cardiovascular Society**

Patients with persistent congestion despite diuretic therapy, with or without impaired renal function, may, under experienced supervision, receive continuous venovenous ultrafiltration

1. HFSA 2010 Comprehensive Heart Failure Practice Guidelines: Lindenfeld J, et al. J Card Fail. 2010 Jun; 16(6): 475 – 539.
2. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: McMurray JJ, et al. Eur Heart J. 2012 Jul; 33(14): 1787 – 1847.
3. 2012 Canadian Cardiovascular Society Heart Failure Management Guidelines Update: McKelvie RS, et al. Can J Cardiol. 2013 Feb; 29(2): 168 – 181.

# Aquadex Business Overview

- Aquadex therapy, a form of ultrafiltration to reduce fluid overload in patients, when diuretics fail
- Acquired from Baxter in August 2016
- FDA 510(k) market cleared and CE marked
- Installed base of 500+ consoles, in over 300 US hospitals and successfully used in over 60k patients

# Aquadex Product Overview

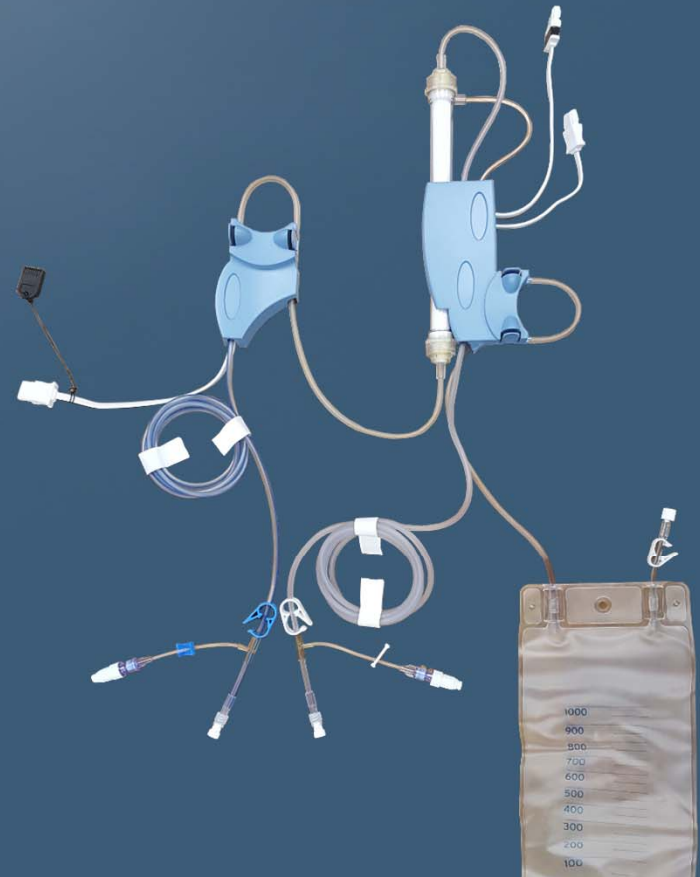
Aquadex Console



Venous Catheter



Blood Circuit Set



# The Value and Utility Advantages of Aquadex FlexFlow® are Compelling

- Predictable removal of sodium and fluids
- Rapid and adjustable removal of fluid
- Efficient patient to nurse workflow
- Customizable therapy plan based on provider's clinical goals for the patients





# Recent Developments Highlight the Company's Successes in Executing Commercial Strategy

- Revenue increased 21% in Q3 2017 over the same period the year before on a pro forma basis
- Expanded sales footprint to 10 territories
- Distribution commenced in United Kingdom and Singapore
- Completed Scientific Advisory Board (SAB) meeting with 6 physician Key Opinion Leaders
- Clinical research protocols underway
- Transitioned Aquadex manufacturing from Baxter to in-house operations
- Current number of customers continues to increase (Currently at 164)



# Key Growth Opportunities Exist

## Aquadex Growth Drivers

- 1 Established Customer Base**  
Opportunity to expand utilization in current base of over 300 US hospital customers who currently own over 500 consoles
- 2 Underpenetrated Inpatient Market**  
1 million annual HF admissions for fluid overload, 30% whom are resistant to diuretics provide an inpatient opportunity of ≥ 315,000 patients/year
- 3 Untapped Outpatient Market**  
Medicare penalties for early readmissions is driving a growing outpatient market with ≈300K treatments per year in U.S. alone
- 4 OUS Growth Opportunity**  
OUS market largely untapped to date, offering long-term growth potential
- 5 Multiple Clinical Applications**  
Aquadex removes excess fluid in diuretic resistant patients with a variety of volume overloaded conditions
- 6 Alignment with Market Dynamics**  
Readmission and length of stay benefits of Aquadex are in line with the market shift toward value-based technology
- 7 Dedicated Reimbursement Opportunity**  
Producing clinical data or assimilating existing data can achieve dedicated outpatient codes and drive market uptake



## For More Information

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