Investor Presentation

Bringing organ-restoring solutions to critically ill patients

October 2024

Seastarmedical.com
Nasdaq: ICU

Forward-looking statements

This presentation contains certain forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1955. These forward-looking statements include, without limitation, SeaStar Medical's expectations with respect to the timing of regulatory approval of its products, the expected timing on enrollment, generation of study results, submission of PMA and other corporate milestones, the ability of SCD to treat patients with AKI, and the potential benefits of SCD to treat other diseases. Words such as "believe," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," and similar expressions are intended to identify such forward-looking statements. Forward-looking statements are predictions, projections and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to significant risks and uncertainties that could cause the actual results to differ materially from the expected results. Most of these factors are outside SeaStar Medical's control and are difficult to predict. Factors that may cause actual future events to differ materially from the expected results include, but are not limited to: (i) the risk that SeaStar may not be able to obtain regulatory approval of its SCD product candidates; (ii) the risk that SeaStar may not be able to raise sufficient capital to fund its operations, including clinical trials; (iii) the risk that SeaStar Medical and its current and future collaborators are unable to successfully develop and commercialize its products or services, or experience significant delays in doing so, including failure to achieve approval of its products by applicable federal and state regulators, (iv) the risk that SeaStar Medical may never achieve or sustain profitability; (v) the risk that SeaStar Medical may not be able to access funding under existing agreements; (vi) the risk that third-parties suppliers and manufacturers are not able to fully and timely meet their obligations, (vii) the risk of product liability or regulatory lawsuits or proceedings relating to SeaStar Medical's products and services, (xiii) the risk that SeaStar Medical is unable to secure or protect its intellectual property, and (xi) other risks and uncertainties indicated from time to time in SeaStar Medical's Annual Report on Form 10-K, including those under the "Risk Factors" section therein and in SeaStar Medical's other filings with the SEC. The foregoing list of factors is not exhaustive. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and SeaStar Medical assume no obligation and do not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise.

SEASTAR MEDICAL

Commercial-stage company with patented, clinically validated, organ-agnostic therapeutic device targeting life-threatening hyperinflammation

The Selective Cytopheretic Device (SCD) extracorporeal platform stops the cytokine storm and safely restores organ function

Changing the standard of care, one patient at a time

Investment highlights

BEST-IN-CLASS TECHNOLOGY

- Patented, proprietary SCD platform addresses life-threatening unmet medical needs
- Clinically proven to reduce mortality and decrease dialysis dependency in acute kidney injury
- Potential to dramatically reduce economic burden of disease
- Proven delivery system
- Shelf-life stability at room temperature

MULTIBILLION-DOLLAR MARKET

- Platform technology potential application in multiple high-value acute and chronic indications
- Technology requires minimal, if any, modifications for new indications
- Same SCD, Same Mechanism of Action, with access to a multitude of indications

COMMERCIALIZING FIRST INDICATION

- 1st FDA approval for pediatric acute kidney injury with sepsis
- Product shipped in July 2024
- QUELIMMUNE™ (SCD-PED) commercial strategy to target leading children's hospitals
- Approval validates platform and derisks future FDA approvals

PIVOTAL TRIAL PROGRESS

- Enrolling patients in pivotal adult trial, NEUTRALIZE-AKI
- Adult acute kidney injury population 50x larger than pediatric
- CMS coverage for a portion of trial costs

EXPERIENCED EXECUTIVE TEAM

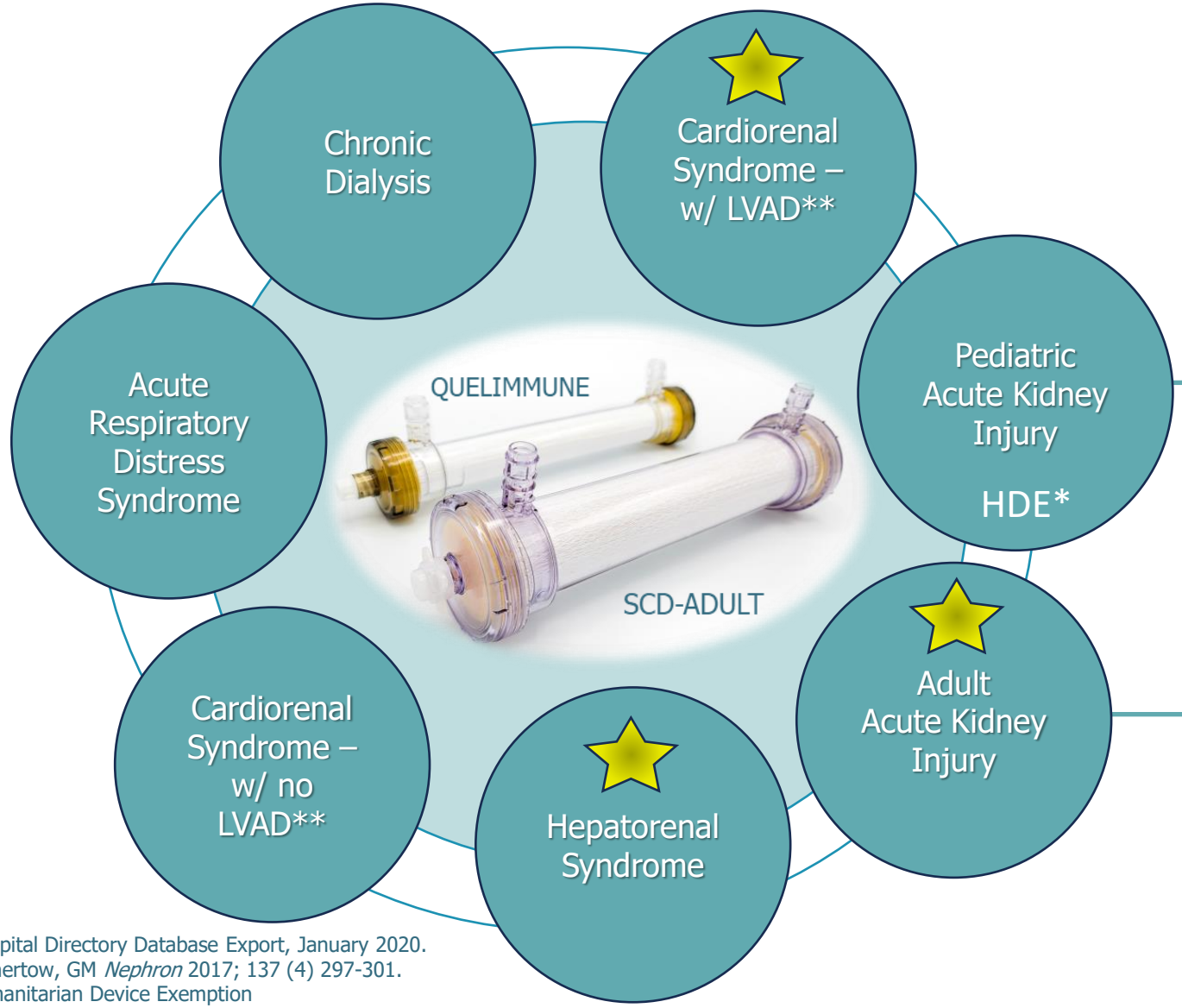
- Seasoned, dynamic leadership with over 150 years of industry experience* and clear focus on advancing strategy
- Wealth of executive, operational, financial, clinical and regulatory expertise

*Based on the 6 members of the leadership team

Diverse application in multiple blockbuster potential, inflammation-driven diseases where vascular access is in place

SCD-ADULT requires minimal to no modification for new indications

Covered by 40 U.S. and foreign issued patents and 8 pending applications



FDA Approved

NEUTRALIZE-AKI
Pivotal Trial

★ Awarded Breakthrough Device Designation

1. America Hospital Directory Database Export, January 2020.
2. Silver SA, Chertow, GM *Nephron* 2017; 137 (4) 297-301.
3. *HDE – Humanitarian Device Exemption
4. **LVAD – Left Ventricular Assist Device

Blockbuster potential in near-term indications

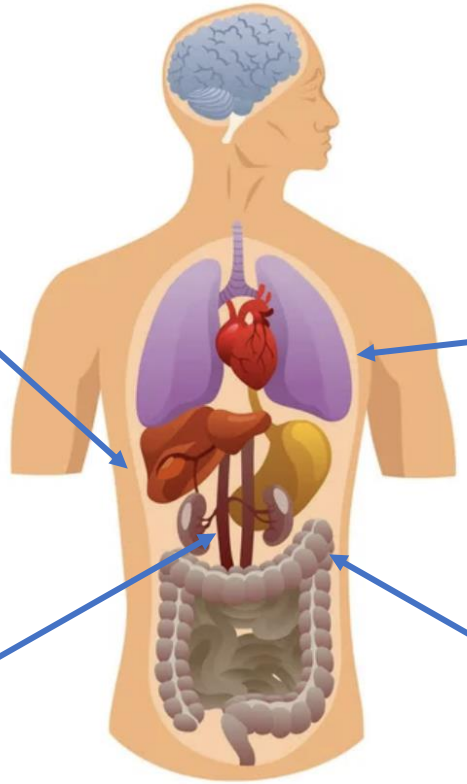
Captive inpatient settings with vascular access intact
Annual U.S. patient population

Adult Hepatorenal Syndrome

~50,000 patients[4,5]

Adult Acute Respiratory Distress Syndrome

~200,000 patients[3]



Pediatric Acute Kidney Injury

~4,000 patients[1]

Adult Acute Kidney Injury

~210,000 patients[2]

Base Revenue Opportunity

TAM ~500,000 patients

Average cost of therapy per patient = $10,000-20,000 (3-7 days of treatment)

Conservative market penetration ~10%

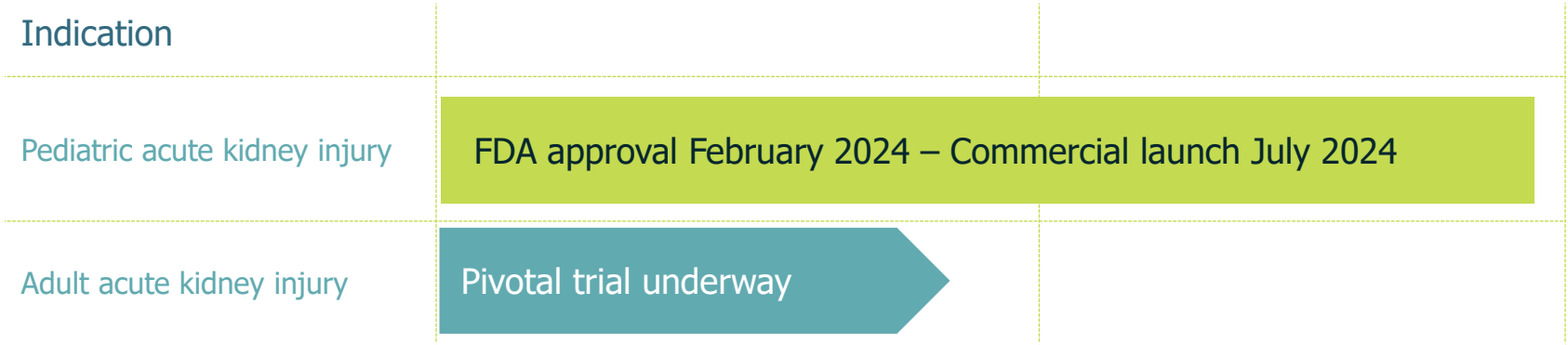
Annual Potential US Revenue ~$1B

1. America Hospital Directory Database Export, January 2020.
2. Silver SA, Chertow, GM *Nephron* 2017; 137 (4) 297-301.
3. American College of Physicians, ACP Hospitalist, Coding information from July 2019.
4. Sepanlou, et al. Lancet Gastroenterology & Hepatology, 2020 Mar;5(3):245-266.
5. Orman, et al JAMA Netw Open. 2019 Oct 2;2(10):e1913673.

FDA-approved for pediatric acute kidney injury and pivotal adult acute kidney injury trial underway

QUELimmune™ (Selective Cytopheretic Device - Pediatric)

*QUELIMMUNE is approved under a Humanitarian Device Exemption for the treatment of children with sepsis or septic condition**



Pediatric acute kidney injury approval sets a strong precedent for approvals in additional indications

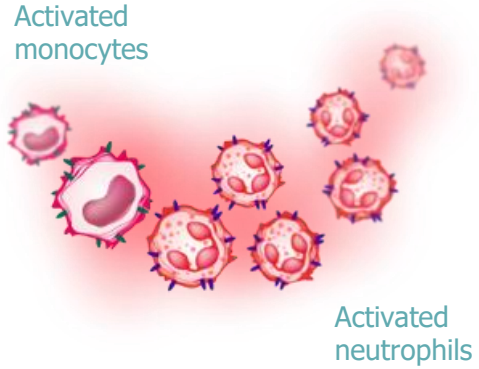
*QUELIMMUNE is approved by the FDA as a Humanitarian Use Device (HUD) to treat pediatric patients with acute kidney injury and sepsis or septic condition weighing 10 kilograms and requiring kidney replacement therapy

SCD TECHNOLOGY PLATFORM

Hyperinflammatory response can lead to multi-organ damage and death

Infection / Injury

Innate Immune Response



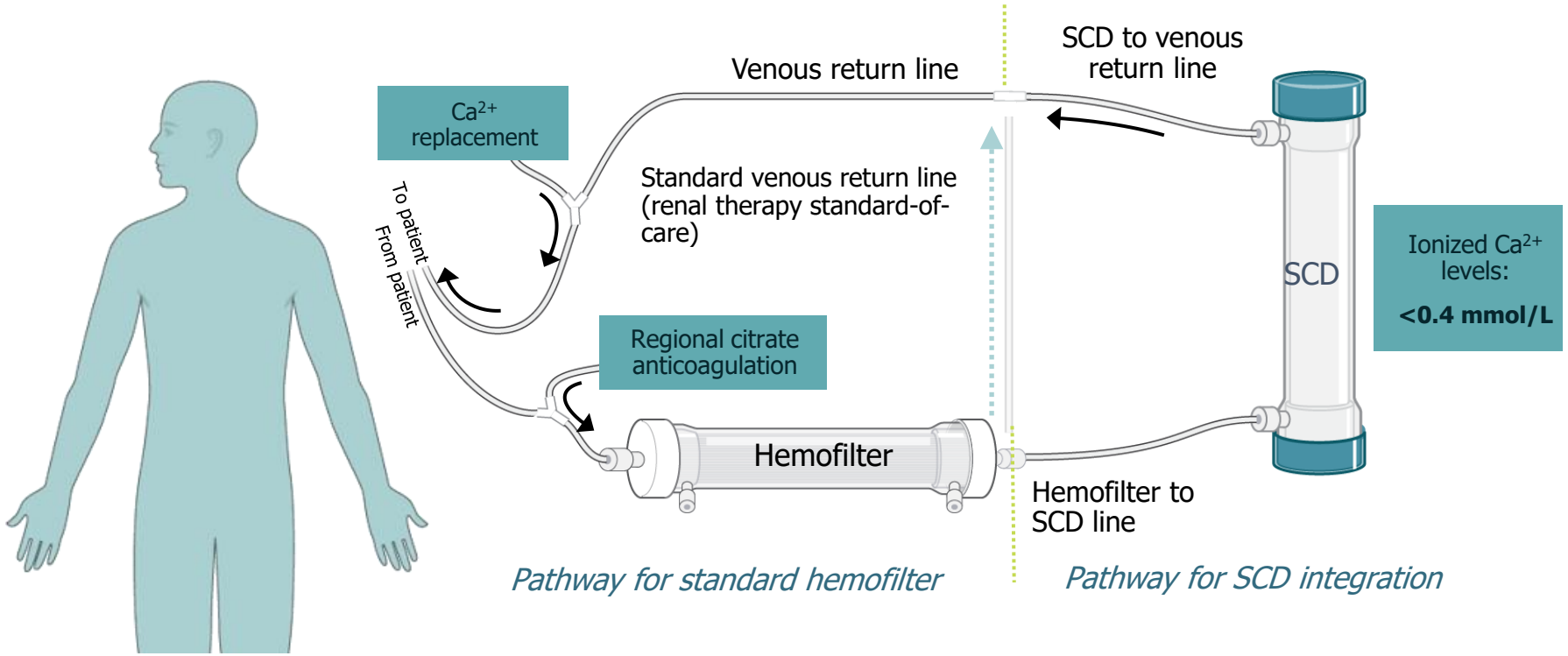
Dysregulated immune response (hyperinflammation)

End-Organ Damage

- Pulmonary infiltrates
- Lung injury
- Acute respiratory distress syndrome
- Cardiovascular shock
- Disseminated intravascular coagulant
- Acute kidney injury

Patient Outcome: Permanent Organ Damage or Death

Unique mechanism of action restores reparative physiology



LOWER ionized calcium in circuit with citrate

Selectively TARGET highly activated neutrophils & monocytes

DEACTIVATE through neutrophil apoptosis and monocyte shift to repair phenotype

HOMEOSTASIS-RESTORING THERAPY

SCD conveniently connects with existing continuous kidney renal therapy that's widely available in U.S. ICUs today

SCD targets ***upstream source*** of effector cells and *neutralizes effector cells* that release cytokines

SCD targets the **SOURCE** of cytokine production

Other drugs and therapies that focus on individual downstream inflammatory targets such as IL-6, TNF-α etc. ***fail to address the high redundance in the immune system***

Neutralization of activated effector cells helps restore homeostasis

Cytokine storm

Neutrophil & Monocyte effector cells

Insult or injury

Immune response

Increased cytokine production from effector cells and the recruitment of additional leukocytes

SCD CLINICAL EVIDENCE

Pediatric patients with acute kidney injury are vulnerable to cytokine storms

Despite ICU's standard care in managing electrolytes, fluids and toxins, the condition of pediatric patients with acute kidney injury often worsens due to untreated hyperinflammation

27%

ICU

Overall incidence of acute kidney injury in the pediatric ICU setting[1]

2x

LONGER

Patients with acute kidney injury stay in the ICU twice as long - 8 days vs 4 days[2]

50%

MORTALITY

For children with acute kidney injury and multi-organ dysfunction requiring continuous kidney replacement therapy[3-5]

≥30%

CHRONIC DISEASE

Incidence of chronic kidney disease for pediatric patients with acute kidney injury[6]

1. Kaddourah A, et al. NEJM. 2017; 376:11-20.
2. De Zan F, et al. Blood Purif. 2020;49:1-7.
3. Symons JM, et. al. Clin J. Am Soc Nephrol 2007
4. Modem V, et al. Crit Care Med 2013.
5. Goldstein, SL, et al. Kidney Int 2005; 67; 653-658.
6. Menon S, et. al Ped Nephr 2023 (38) Suppl 1:S41.

QUELIMMUNE clinical data in pediatric acute kidney injury

77% survival[1]
At Day 60

NO dialysis dependency[2]
At Day 60 (Post-ICU Discharge)

NO device-related immunosuppression, serious adverse events or infections

Pooled data from two clinical trials n=22

1. SL Goldstein et al*: Use of the Selective Cytopheretic Device to Support Critically Ill Children Requiring Continuous Renal Replacement Therapy: A Probable Benefit-Risk Assessment*, medRxiv 2023.08.22.23294378; doi: https://doi.org/10.1101/2023.08.22.23294378.
2. SL Goldstein et al.: *The Selective Cytopheretic Device in Children; Kidney International Reports (2021*).
3. F De Zan et al: *Acute Kidney Injury in Critically Ill Children: A Retrospective Analysis of Risk Factors*. Blood Purif. 2020;49(1-2):1-7. doi: 10.1159/000502081. Epub 2019 Aug 5. PMID: 31382259.

Pediatric and adult acute kidney injury study outcomes summary

Pediatric Data

Study / Parameter	SCD-PED-01 (≥ 15kg) (N=16)	SCD-PED-02 (10-20 kg) (N=6)	Combined PED-01 / PED-02 (N=22)
Survival Day 60	12 (75%)	5 (83%)	17 (77%)
Dialysis Dependence Day 60*	0%	0%	0%
Normal Kidney Function Day 60*			87.5%

* - of survivors (Day 60 Post-ICU Discharge)

Adult Data

Study / Parameter *Patients treated with SCD*	US Adult ARF Pilot – 002 (N=35)	US Adult ARF – 003 (N=19)	Historical Control
Survival Day 60	69%	84%[1]	50%[2]
Dialysis Dependence Day 60	0%	0%	25%[2,3]

1. Treated per protocol (iCa in therapeutic range using citrate)
2. Uchino S, et al. JAMA. 2005.
3. Bagshaw SM, et al. Crit Care. 2005.

SCD has been utilized in multiple blockbuster potential indications in critically ill patients with high mortality rates

3 Organs Failed

ON AVERAGE

50-60% Sepsis

AMONG PATIENTS

Examples of Mortality – Underlying Conditions

Condition	In Hospital Mortality
Cardiorenal Syndrome w/ Acute Kidney Injury	~40%[3]
Hepatorenal Syndrome w/ Acute Kidney Injury	~30%[1]
Streptococcal Toxic Shock Syndrome	~40%[2]

1. World J Gastroenterol. 2021 Jul 14; 27(26): 3984–4003.
2. Clin Infect Dis 2016 Aug 15;63(4):478-86.
3. Int. J Cardiol 2017 Mat1:230:255-261.

Patients with Acute Kidney Injury on Continuous Kidney Replacement Therapy

Comorbidities Include (but not limited to):

- BMI over 40 (morbidly obese)
- COVID-19
- All in ICU

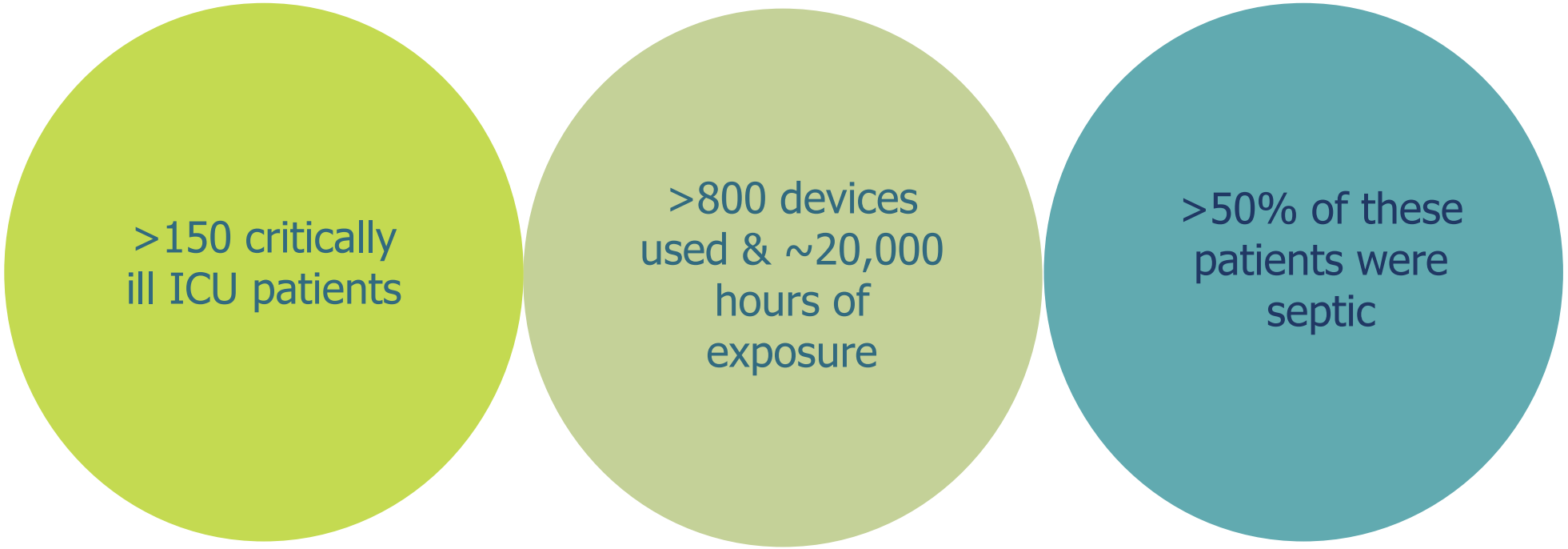
Insults Include (but not limited to):

- Surgery
- Trauma
- Bacterial & Viral Infections

Underlying Etiologies Treated:

- Cardiorenal Syndrome
- Hemophagocytic Lymphohistiocytosis
- Hepatorenal Syndrome
- Shiga-toxin E. Coli Hemolytic Uremic Syndrome
- Streptococcal Toxic Shock Syndrome

SCD has demonstrated a safe profile across six adult and pediatric acute kidney injury trials



No device-related infections, serious adverse events, immunosuppression or immuno-depletion

Studies Include: OUSa Pilot Study, ARF-002 Pilot Study, SCD-003, SCD-PED-01, SCD-PED-02, SCD-005.
Crit Care Explor Journal, www.authorea.com/doi/full/10.22541/au.169046178.83772599.

COMMERCIAL + REGULATORY STRATEGIES

SCD provides value to a hospital's bottom line

Critically ill patients with characteristics similar to those in SCD studies - continuous kidney replacement therapy with sepsis, high use of mechanical ventilation and/or vasopressors:[1]

- Mean total length of stay is >30 days
- Mean total hospitalization cost is >$450,000 per patient

*Inflation-adjusted to 2024

SAVE registry to confirm hospital length of stay and readmission rates of acute kidney injury, which could support substantial cost savings to hospitals

Mortality rate % with multi-organ failure[2]			
1 organ	2 organs	3 organs	4 organs
11%	24%	60%	62%

Total SCD Cost
for a full course (3-7 days)

~$10,000 - 20,000

Disposable model
changed every 24 hours

1. Kids' Inpatient Database 2019.
2. F. A. Moore, et al., "Postinjury Multiple Organ Failure: A Bimodal Phenomenon," Journal of Trauma, Vol. 40, No. 4, 1996, pp. 501-502.

Commercial strategy for pediatric acute kidney injury targeting top 50 leading children's hospitals

Initial Launch: Top 5 U.S. Pediatric Children's Hospitals. **First product shipped in July 2024**

220 U.S. children's hospitals[1]
- Treat ~4000 pediatric acute kidney injury patients
- ~7,200 ICU beds

Top 50 U.S. children's hospitals
- Treat ~50% of pediatric acute kidney injury patients[2,3]
- ~4,000 ICU beds[2,3]

~20% of top 50 U.S. children's hospitals have experience with QUELIMMUNE

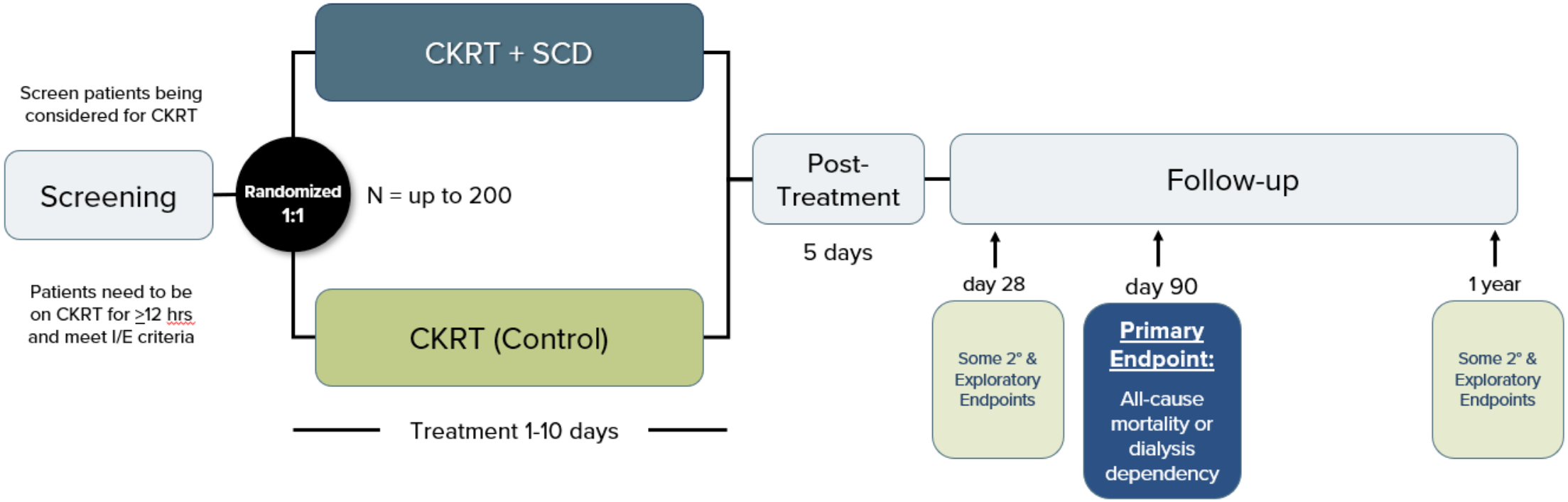
1. https://www.childrenshospitals.org.
2. America Hospital Directory Database Export January 2020
3. https://www.beckershospitalreview.com/lists-and-statistics/30-largest-childrens-hospitals-in-the-united-states.html

Adult acute kidney injury pivotal trial design

The NEUTRALIZE-AKI Trial

Study Objective

Assess the safety & efficacy of SCD in acute kidney injury patients requiring continuous kidney replacement therapy (CKRT)



Patient Population

- Adults aged 18-80 in ICU with acute kidney injury ≥ stage 2 requiring CKRT (CKRT ≥ 12 h ≤ 48 h)
- One additional life-threatening organ dysfunction
- Commitment to maintain current level of care for ≥ 96 h
- C-reactive Protein > 3.5 mg/dL

NEUTRALIZE-AKI pivotal trial gaining momentum

- 46 of up to 200 subjects enrolled (>20% to date)
- 9 of up to 30 medical sites activated
- Mix of academic and community hospitals
- Interim data review of first 100 subjects at 90-days post-treatment
- Final analysis following last 90-day endpoint
- Publish results in peer-reviewed medical journal
- Present results at scientific conferences
- Commercial launch expected in 2026

CMS reimbursement for Medicare patients

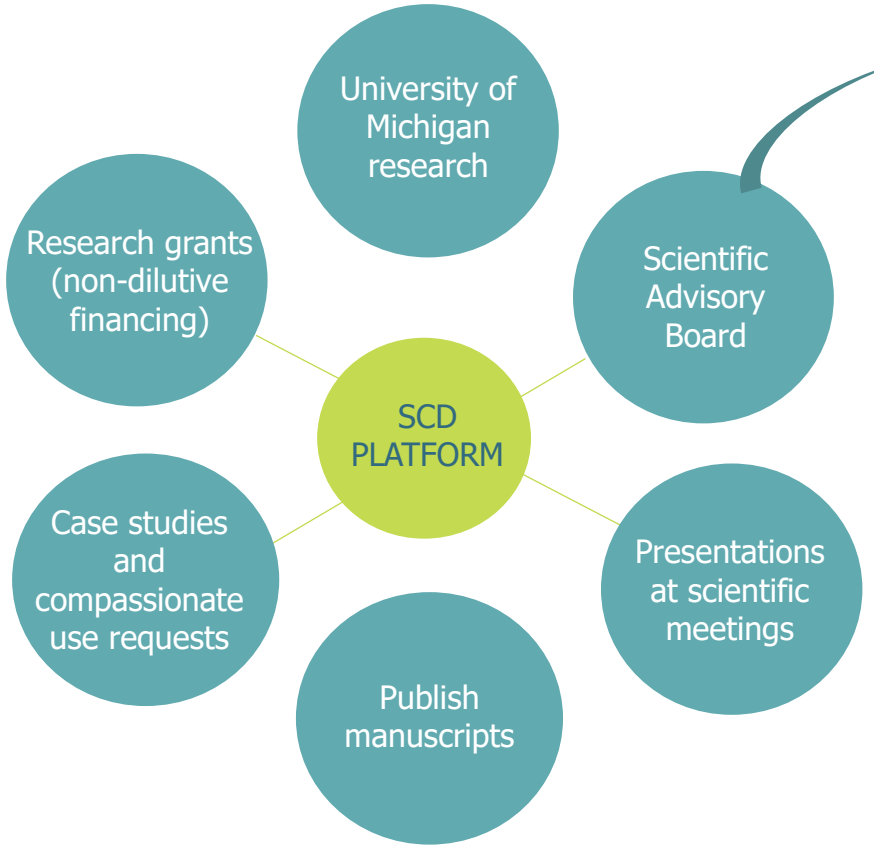
- *Reduces trial costs*
- *Increase site activations and accelerate subject enrollment*

SCD Platform - Approach to clinical development:

Scientifically Driven, Cost-Effective, Medical-Community Focused

The NEUTRALIZE-AKI Trial

Engage and Drive the Science



Chaired by David Humes, MD
SCD inventor, Professor, Division of Nephrology - University of Michigan

11 world-renowned leaders in pediatric and adult nephrology, critical care and translational science

Strategy is to expand indications with platform technology

Indication Evaluation Process

- Evaluate inflammation-based conditions or diseases driven by activated neutrophils / monocytes
- High Burden of disease and unmet medical need in an operable patient setting
- Clear commercial opportunity based on population size and or lack of approved therapies
- Clear clinical value proposition that delivers clinical outcomes to the patient and economic value to the customer
- Clear reimbursement pathway that provides pricing power and flexibility

Results – Where we are Investing Resources

- Adult Acute Kidney Injury – **Awarded Breakthrough Status**
- Cardiorenal Syndrome w/ LVAD – **Awarded Breakthrough Status**
- Hepatorenal Syndrome – **Awarded Breakthrough Status**

Seasoned, dynamic leadership

ERIC SCHLORFF

CEO + Board Member

DAVID GREEN

Chief Financial Officer

KEVIN CHUNG, MD

Chief Medical Officer

SAI IYER, PHD

SVP, Medical Affairs and Clinical Development

TOM MULLEN

SVP, Manufacturing and Product Development

TIM VARACEK

SVP, Commercial Business Operations

InterMune AMGEN EY AdventHealth VIFOR PHARMA DOW CHINOOK THERAPEUTICS USU Uniformed Services University IMG

2024 financial highlights

Improved Capital Structure

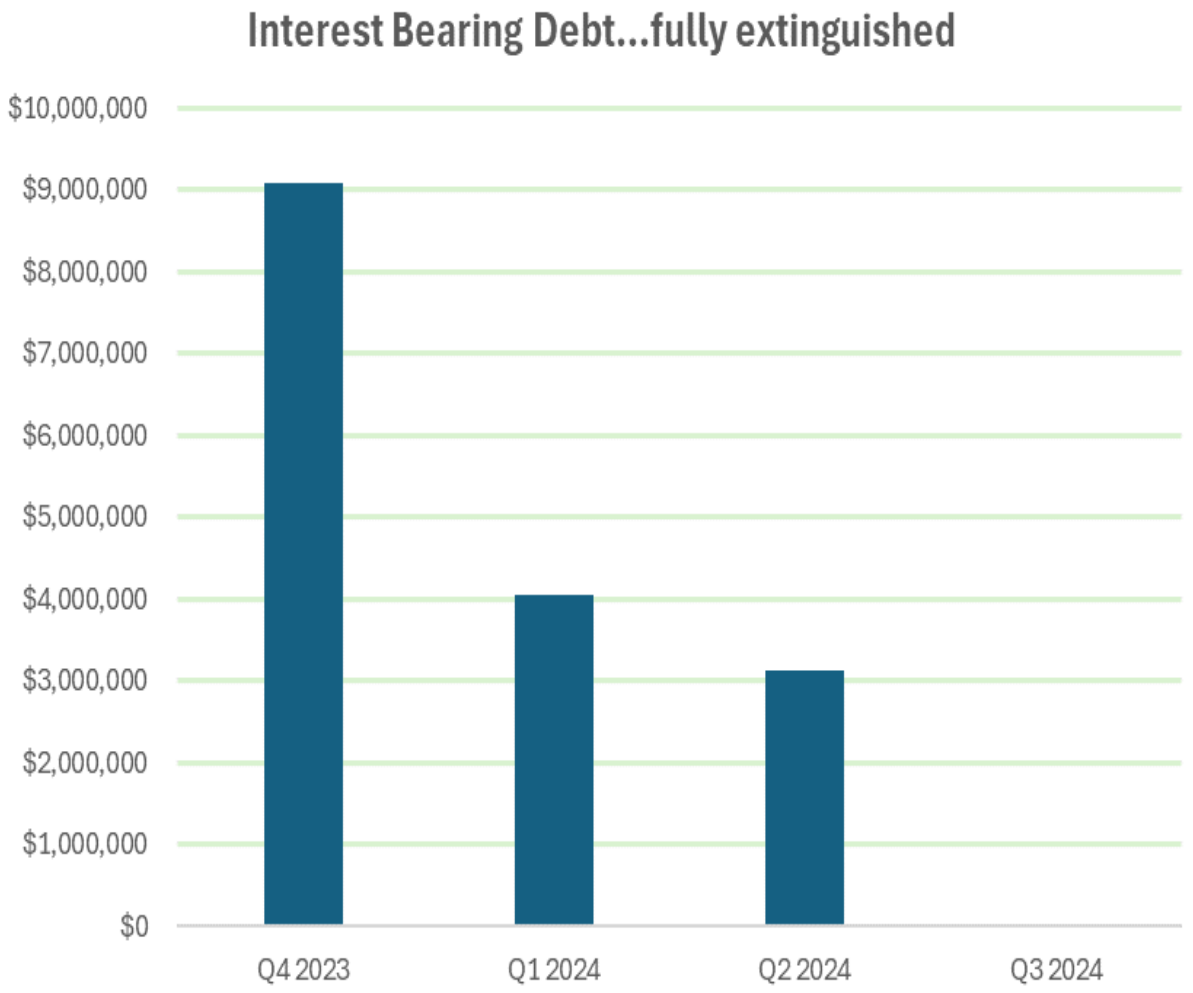
- Extinguished all outstanding debt
- Raised $19 million new equity
- $6.9 million cash balance as of July 31, 2024

Cash used in operations (6 mos. 2024)

- $6.3 million while funding pivotal clinical trial

First commercial sale in Q3

- Initial sales for QUELIMMUNE



Capital Structure

As of October 1, 2024

Ticker Symbol	ICU
Price	$4.09
Shares Outstanding	4,214,399
Market Capitalization	$17,236,891
Warrants Outstanding	2,359,829
Weighted Average Exercise Price for Warrants	$92.88
Interest-bearing Debt	Zero

Catalysts to drive value creation

2024

- QUELIMMUNE FDA approval for pediatric acute kidney injury
- QUELIMMUNE commercial product launch
- CMS coverage for adult acute kidney injury trial costs
- $3.6 million NIH grant for severe cardiorenal syndrome

2025

- Topline data from pivotal adult acute kidney injury trial
- QUELIMMUNE launch expansion to >25 hospital systems
- Initiate pivotal trial in cardiorenal syndrome
- Breakthrough Device Designation in two additional indications

2026

- FDA approval of SCD for adult acute kidney injury (50x more patients than pediatric)
- U.S. commercial launch of SCD for adult acute kidney injury
- Topline data severe cardiorenal syndrome
- Breakthrough Device Designation in two additional indications

Investment highlights

BEST-IN-CLASS TECHNOLOGY

- Patented, proprietary SCD platform addresses life-threatening unmet medical needs
- Clinically proven to reduce mortality and decrease dialysis dependency in acute kidney injury
- Potential to dramatically reduce economic burden of disease
- Proven delivery system
- Shelf-life stability at room temperature

MULTIBILLION-DOLLAR MARKET

- Platform technology potential application in multiple high-value acute and chronic indications
- Technology requires minimal, if any, modifications for new indications
- Same SCD, Same Mechanism of Action, with access to a multitude of indications

COMMERCIALIZING FIRST INDICATION

- 1st FDA approval for pediatric acute kidney injury with sepsis
- Product shipped in July 2024
- QUELIMMUNE (SCD-PED) commercial strategy to target leading children's hospitals
- Approval validates platform and derisks future FDA approvals

PIVOTAL TRIAL PROGRESS

- Enrolling patients in pivotal adult trial, NEUTRALIZE-AKI
- Adult acute kidney injury population 50x larger than pediatric
- CMS coverage for a portion of trial costs

EXPERIENCED EXECUTIVE TEAM

- Seasoned, dynamic leadership with over 150 years of industry experience* and clear focus on advancing strategy
- Wealth of executive, operational, financial, clinical and regulatory expertise

Investor Contact:
LHA Investor Relations
Jody Cain
Jcain@lhai.com / 310-691-7107

*Based on the 6 members of the leadership team