

It Takes A Village: Systems of Care in Cardiogenic Shock

Western PA Cardiogenic Shock Initiative

September 16, 2023

Joyce Wanglee Wald, DO, FACC

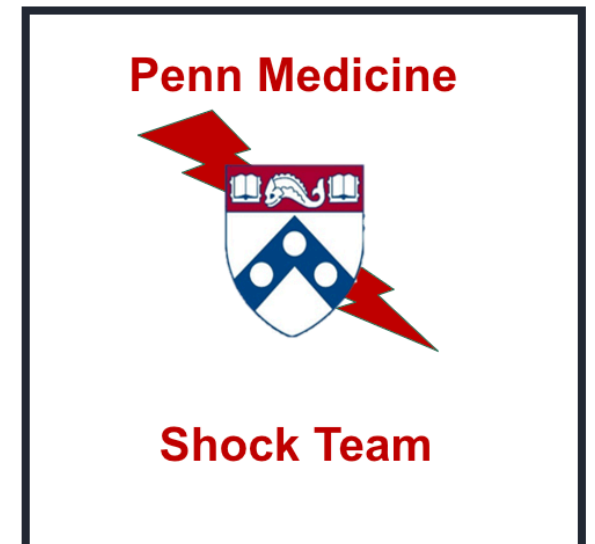
Professor of Clinical Medicine

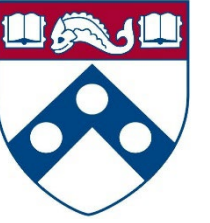
Medical Director, Practice Development HF, Transplant and MCS
Programs

Medical Director, Shock Team

University of Pennsylvania

Philadelphia, PA





Disclosures

- Advisory Board
 - Boston scientific
 - Abiomed
- Speaker's Bureau
 - Impulse dynamics
- Supported Research
 - Abiomed
 - Abott

Of course there are multiple ways to do things, sometimes one way may be better for your institution



Systems of Care in Cardiogenic Shock

Maria M. Patarroyo Aponte, MD; Carlos Manrique, MD; Biswajit Kar, MD

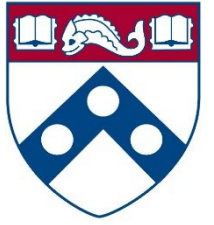
UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON, HOUSTON, TEXAS

ABSTRACT: Cardiogenic shock presents a significant challenge to the medical community, and there is much debate as to the best classification system and treatment mechanisms. As interventions and technologies improve, systems of care for patients with cardiogenic shock must evolve as well. This review describes the current treatment models for cardiogenic shock, including the “hub-and-spoke” model, and defines specific characteristics of the ideal system of care for this patient population.

**“The foremost challenge is that there is no standardized and validated definition of CS”
“next, the inability ...to recognize or manage patients with CS creates delays in the
diagnosis and transfer to the appropriate center” thus affecting short-term and long-
term outcomes**

(theme)

Common Definition of Cardiogenic Shock



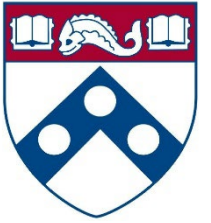
Clinical Criteria

- Systolic BP < 90 mmHg min
 - Or vasopressors to maintain 90 mmHg
- Evidence of end organ hypoperfusion
 - Poor MS: cool, underperfused
 - LFT abnormalities
 - Renal insufficiency
 - Lactate ≥ 2.0 despite intervention



Criteria

- < 30 ml/min/m² without vasopressors
- < 40 ml/min/m² with inotropes or vasopressors
- Pulmonary capillary wedge pressure > 18 mmHg
- Cardiac output (CPO) < 0.6 W



WILEY

CLINICAL DECISION MAKING

SCAI clinical expert of cardiogenic shock

This document was endorsed by the American Heart Association and the Society of Thoracic Surgeons

David A. Baran MD, FSCAI (Co-Chair)
Steven Bailey MD, MSCAI, FAHA
Shelley A. Hall MD, FACC, FHFJ
Steven M. Hollenberg MD^{7‡} |
William O'Neill MD, MSCAI⁹
Kelly Stelling RN¹ | Holger Thiele MD, FESC, FACC, FHFJ
Srihari S. Naidu MD, FACC, FAHA, FSCAI

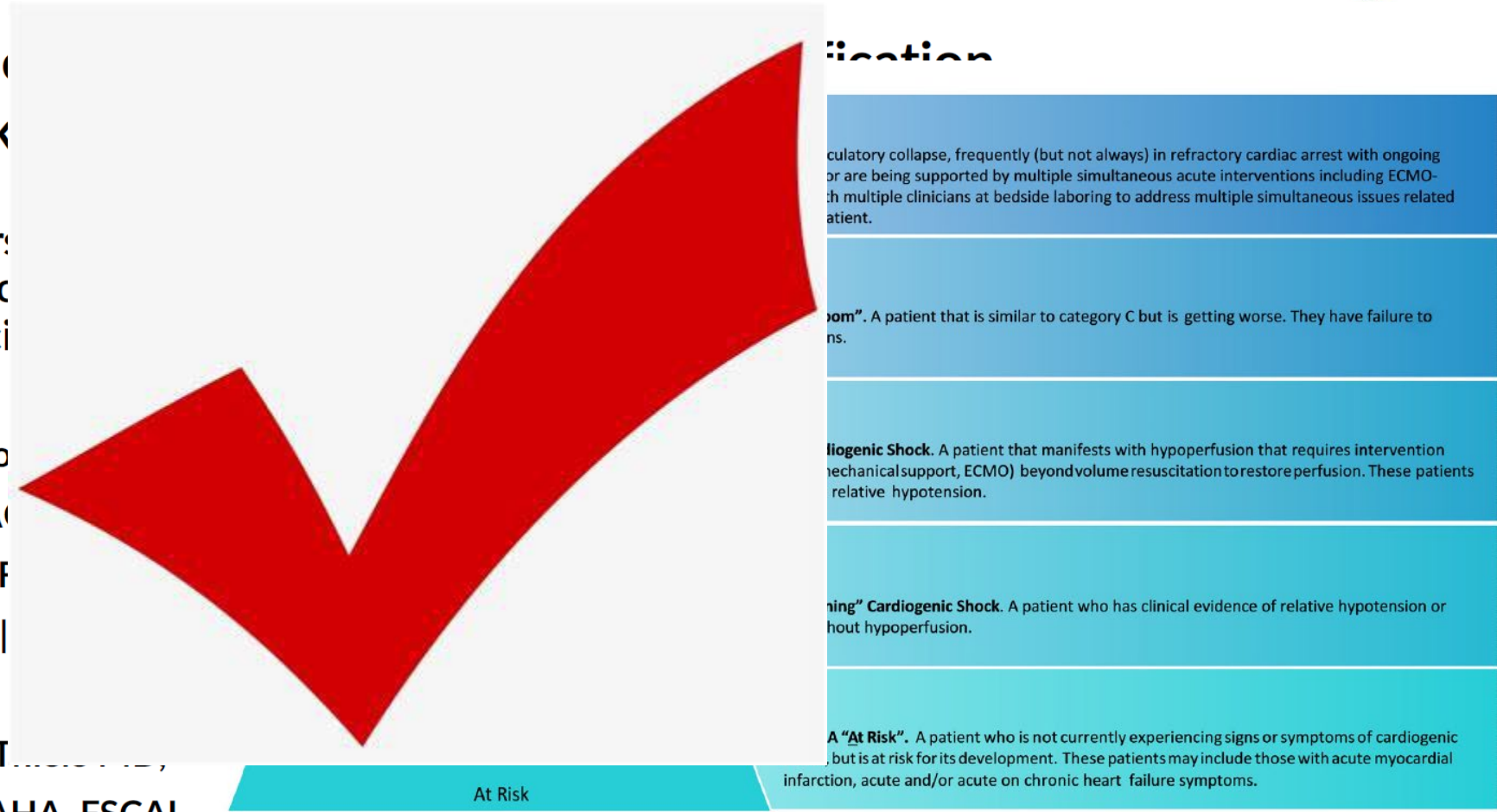


FIGURE 1 The pyramid of CS classification

Common language of how we describe these patients

HUB AND SPOKE MODEL AIRLINES EXAMPLE

The airline industry revolutionized the hub and spoke model. Airlines operate out of a centralized hub and use regional airports as the spokes from which they offer flights. Aviation experts acknowledge that the hub and spoke model resulted in the rapid increase of the airline industry thanks to an increase in the efficient use of relatively scarce air transit resources (only a certain number of airports exist, for example).

However, as with any business model, the hub and spoke approach is not perfect. There's the issue of hub congestion, which can create bottlenecks. Focusing too much on the central hub can cause you to unintentionally ignore other resources available. In the social media example, if you're not careful to use a social media management tool that gives you absolutely everything you need, you can miss out on conversations or opportunities to engage with followers by not logging into the platform directly.

Early Example of Hub Spoke model for PCCS

Left Ventricular Assist Device Bridge-to-Transplant Network Improves Survival After Failed Cardiectomy

David N. Helman, MD, David L. S. Morales, MD, Niloo M. Edwards, MD, Donna M. Mancini, MD, Jonathan M. Chen, MD, Eric A. Rose, MD, and Mehmet C. Oz, MD

Divisions of Cardiothoracic Surgery and Cardiology, Columbia-Presbyterian Medical Center, Columbia University College of Physicians and Surgeons, New York, New York

**One of the earliest hub and spoke models
PCCS patients were transferred from less experienced
hospitals to a center with advanced options and the
hospital to discharge rates were
74% compared to 25% HISTORICAL controls.**

(Ann Thorac Surg 1999;68:1187-94)

© 1999 by The Society of Thoracic Surgeons

Management and Outcomes of Cardiogenic Shock in Cardiac ICUs With Versus Without Shock Teams



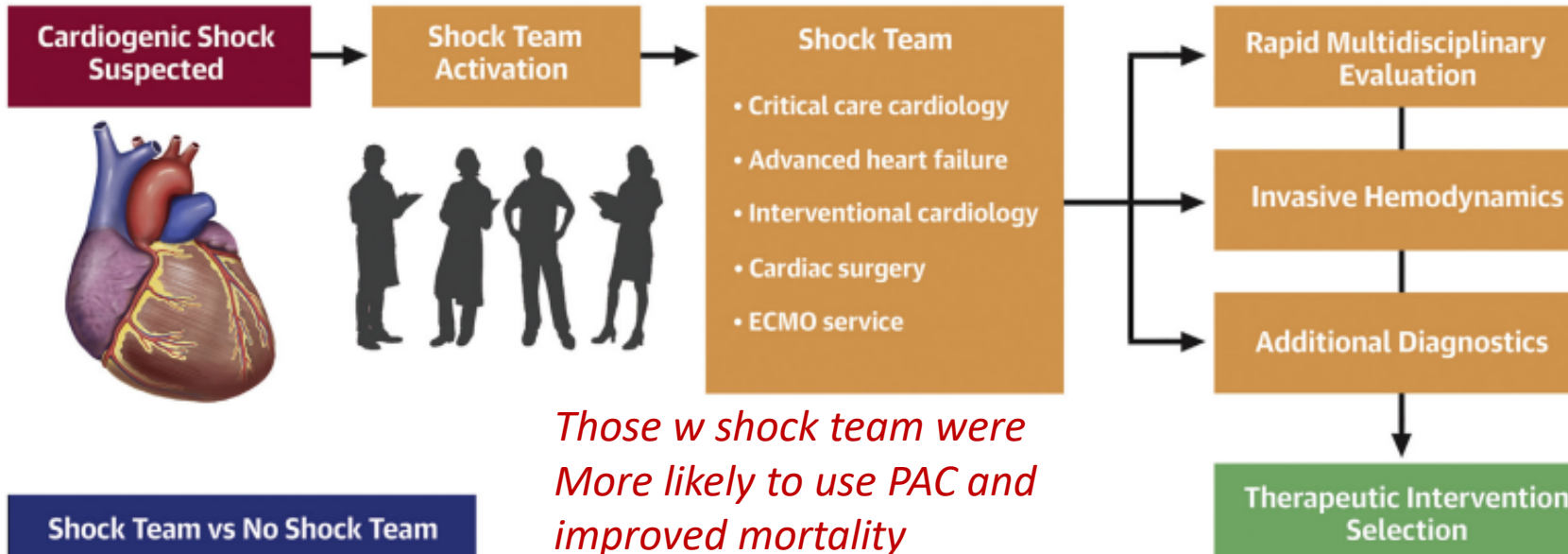
Alexander I. Papolos, MD,^a Benjamin B. Kenigsberg, MD,^a David D. Berg, MD,^b Carlos L. Alviar, MD,^c
Erin Bohula, MD, PhD,^b James A. Burke, MD, PhD,^d Anthony P. Carnicelli, MD,^e Sunit-Preet Chaudhry, MD,^f
Stavros Drakos, MD, PhD,^g Daniel A. Gerber, MD,^h Jianping Guo, MAS,^b James M. Horowitz, MD,^c Jason N. Katz, MD,^e
Ellen C. Keeley, MD,ⁱ Thomas S. Metkus, MD,^j Jose Nativi-Nicolau, MD,^g Jeffrey R. Snell, MD,^k
Shashank S. Sinha, MD,^l Wayne J. Tymchak, MD,^m Sean Van Diepen, MD,^m David A. Morrow, MD,^{b,*}
Christopher F. Barnett, MD,^{a,*} on behalf of the Critical Care Cardiology Trials Network Investigators

Multicenter study, 24 critical care ICUs in the critical care cardiology trials network (C3TN)

10 of the 24 (42%) reported having a shock team

N=6872 consecutive medical admissions from 2017-2019, of these 1242 were for CS, 546 were treated at one of the 10 shock centers

CENTRAL ILLUSTRATION Prototypical Shock Team Workflow and Associated Outcomes



Those w shock team were More likely to use PAC and improved mortality

Shock Team vs No Shock Team Center Population Characteristics	
Cardiogenic shock admissions (n)	546 vs 696
AMI-CS (%)	27 vs 28
Admission lactate (mmol/L)	2.3 vs 2.3
PCWP (mm Hg)	25 vs 22
CI (L/min/m ²)	1.9 vs 2.0
CPO (W)	0.62 vs 0.64

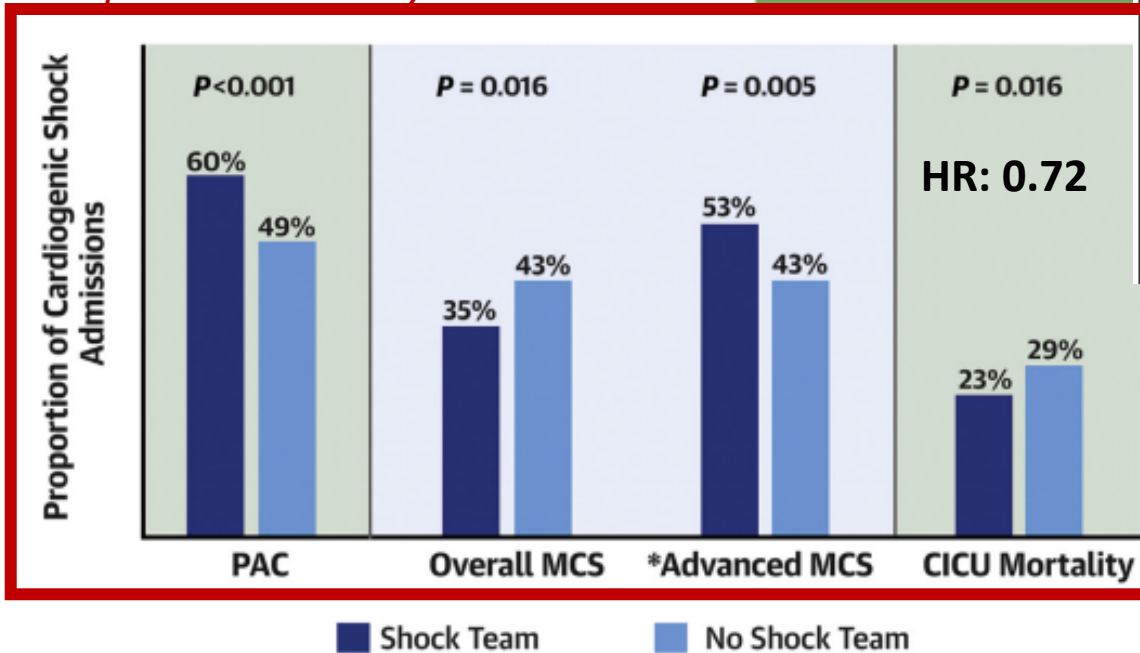


FIGURE 2 Outcomes in Acute and Nonacute Myocardial Infarction-Related CS

	Odds Ratio (95% CI)	P Value
Pulmonary Artery Catheter Use		
AMI-CS	2.38 (1.48-3.82)	<0.001
Non-AMI-CS	1.62 (1.23-2.13)	0.001
Overall	1.86 (1.47-2.35)	<0.001
Advanced MCS Use		
AMI-CS	2.62 (1.44-4.75)	0.002
Non-AMI-CS	1.34 (0.81-2.23)	0.26
Overall	1.73 (1.19-2.51)	0.005
CICU Mortality		
AMI-CS	0.79 (0.48-1.29)	0.34
Non-AMI-CS	0.67 (0.49-0.93)	0.017
Overall	0.72 (0.55-0.94)	0.016

Presence of Shock Team

presence of shock team was independently associated with a 28 % Lower risk for ICU mortality

TABLE 4 Clinical Course and Outcomes of Patients With Cardiogenic Shock

Clinical Course and Outcomes	Shock Team (n = 546)	No Shock Team (n = 696)	P Value
Time from CICU admission to PAC, days	0.3 (0.08-1.00)	0.66 (0.15-1.58)	0.019
Median number of inotropes administered	1 (1-2)	2 (1-2)	0.008
Mechanical ventilation	223 (40.8)	363 (52.2)	<0.001
New renal replacement therapy	58 (10.6)	131 (18.8)	<0.001
Duration of CICU stay, days	4.0 (2.0-7.5)	5.1 (2.4-10.5)	<0.001
CICU mortality	126 (23.1)	200 (28.7)	0.025
MCS			
Treated with any MCS	192 (35.2)	299 (43.0)	0.005
MCS before transfer	47 (24.5)	88 (29.6)	0.22
MCS during first 24 hours	115 (59.9)	154 (51.9)	—
MCS after 24 hours	30 (15.6)	55 (18.5)	—

Values are median (interquartile range) or n (%). The Wilcoxon rank sum test used for continuous variables, and the chi-square test or Fisher exact test was used for categorical variables. MCS rates were obtained within subjects who received MCS. MCS timing was missing in 2 patients in the No Shock Team group.

CICU = cardiac intensive care unit; MCS = mechanical circulatory support; PAC = pulmonary artery catheter.

Got their PAC sooner
Less inotropes
Less likely to need mechanical vent
& less likely to need RRT
And shorter ICU days

And as reviewed previously, lower
Mortality

When you look at MCS use:

Centers with shock
team were > likely to
receive PAC and
outcomes were
improved

Management and Outcomes of Cardiogenic Shock in Cardiac ICUs With Versus Without Shock Teams

Alexander I. Papolos, MD,^a Benjamin B. Kenigsberg, MD,^a David D. Berg, MD,^b Carlos L. Alviar, MD,^c Erin Bohula, MD, PhD,^b James A. Burke, MD, PhD,^d Anthony P. Carnicelli, MD,^e Sunit-Preet Chaudhry, MD,^f Stavros Drakos, MD, PhD,^g Daniel A. Gerber, MD,^h Jianping Guo, MAS,^h James M. Horowitz, MD,ⁱ Jason N. Katz, MD,^g Ellen C. Keeley, MD,^j Thomas S. Metkus, MD,^j Jose Nativi-Nicolau, MD,^k Jeffrey R. Snell, MD,^l Shashank S. Sinha, MD,^l Wayne J. Tymchak, MD,^m Sean Van Diepen, MD,^m David A. Morrow, MD,^{n,*} Christopher F. Barnett, MD,^{n,*} on behalf of the Critical Care Cardiology Trials Network Investigators

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
 © 2019 THE AUTHORS. PUBLISHED BY ELSEVIER ON BEHALF OF THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION. THIS IS AN OPEN ACCESS ARTICLE UNDER THE CC BY-NC-ND LICENSE (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Standardized Team-Based Care for Cardiogenic Shock

Behnam N. Tehrani, MD,^a Alexander G. Truesdell, MD,^{a,b} Matthew W. Sherwood, MD,^a Shashank Desai, MD,^a Henry A. Tran, MD,^a Kelly C. Epps, MD,^a Ramesh Singh, MD,^a Mitchell Psotka, MD, PhD,^a Palak Shah, MD,^a Lauren B. Cooper, MD,^a Carolyn Rosner, NP,^a Anika Raja, BS,^a Scott D. Barnett, PhD,^a Patricia Saulino, RN, MPA,^a Christopher R. deFilippi, MD,^a Paul A. Gurbel, MD,^a Charles E. Murphy, MD,^a Christopher M. O'Connor, MD^a

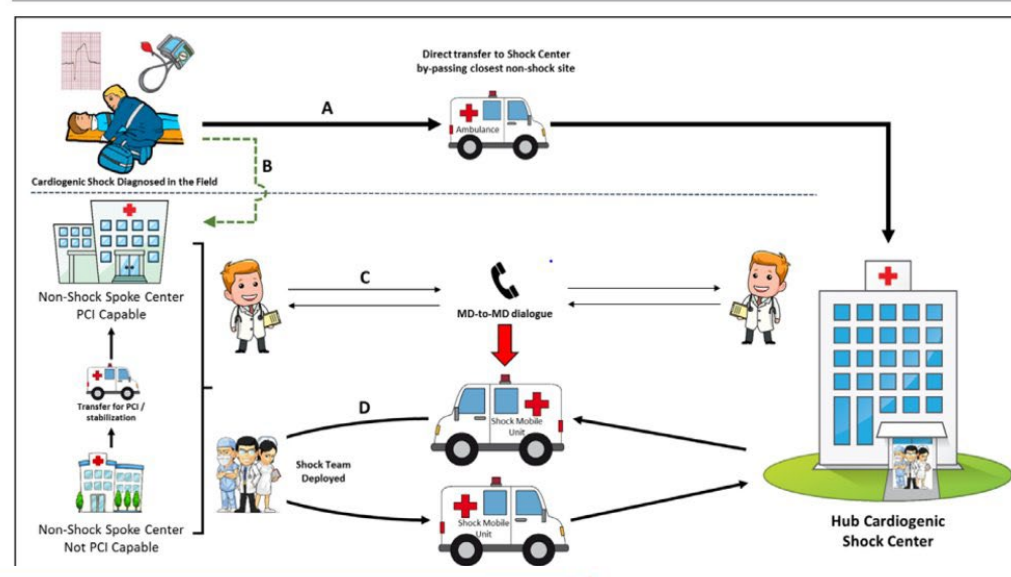
MINI-FOCUS: HEART FAILURE AND CARDIOGENIC SHOCK

STATE-OF-THE-ART REVIEW

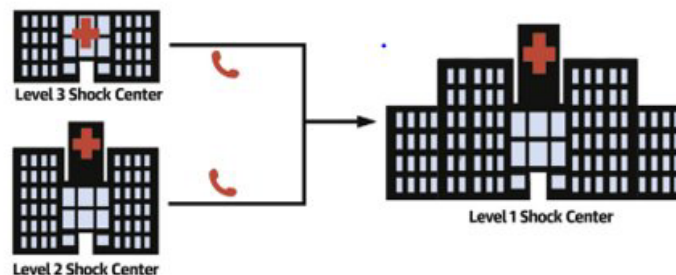
A Standardized and Comprehensive Approach to the Management of Cardiogenic Shock

Behnam N. Tehrani, MD,^a Alexander G. Truesdell, MD,^{a,b} Mitchell A. Pso Ramesh Singh, MD,^a Shashank S. Sinha, MD, MSc,^a Abdulla A. Damluji, MD, Wayne B. Batchelor, MD, MHS^a

VOL. 73, NO. 13, 2019



CENTRAL ILLUSTRATION Proposed Pathway for Contemporary Shock Care



Detroit Cardiogenic Shock Initiative

DETROIT
CSI



However, not everyone approaches a crisis the same way



I learned last night
This one is
Manreet!!

Systems of care have historically
*Improved outcomes

AMI
Stroke (by 12%)
Trauma (by 15%)
Acute aortic dissection (by 43%)
Cardiac Arrest (by 46%)

But all are kinda easy to identify

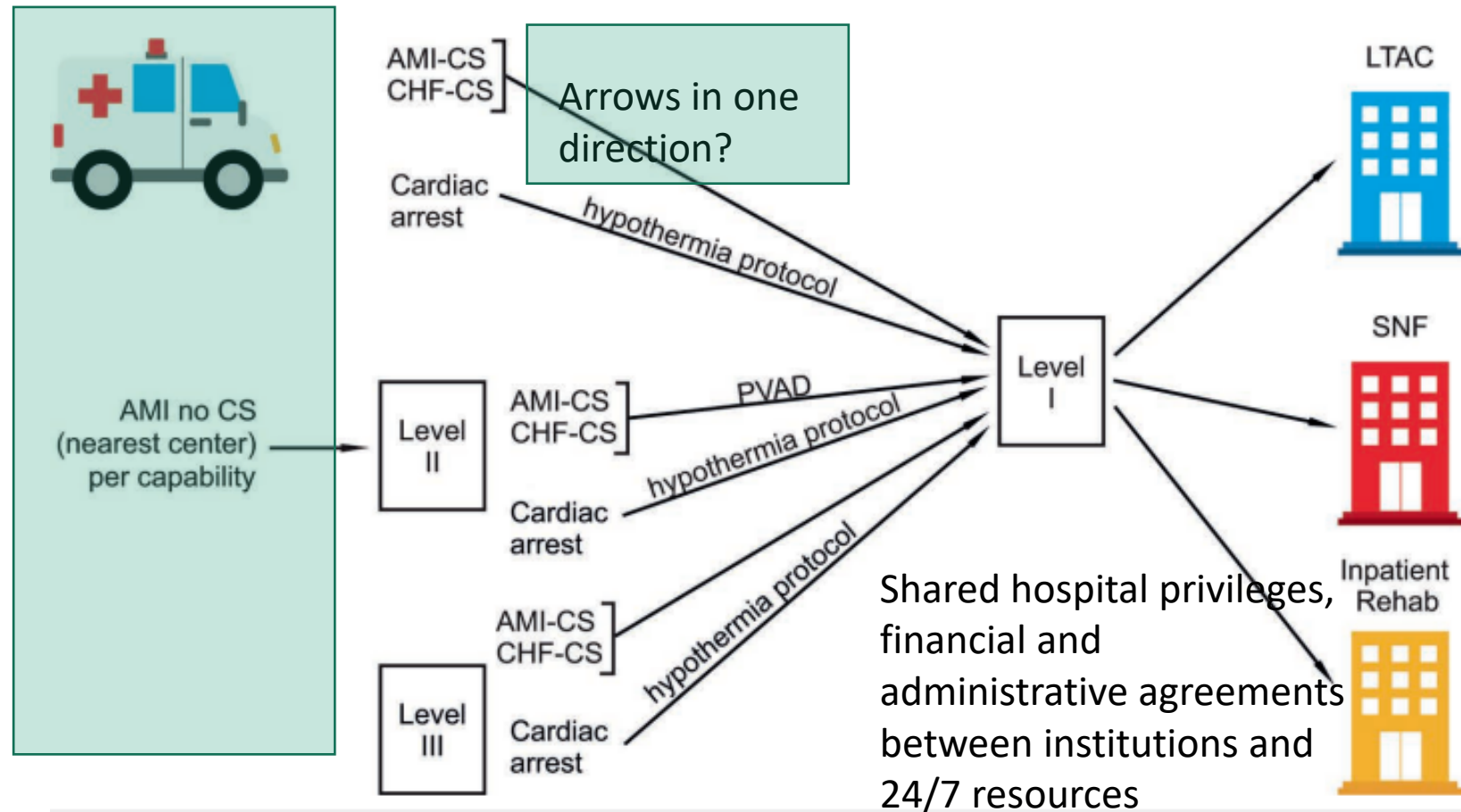


Figure 1. **

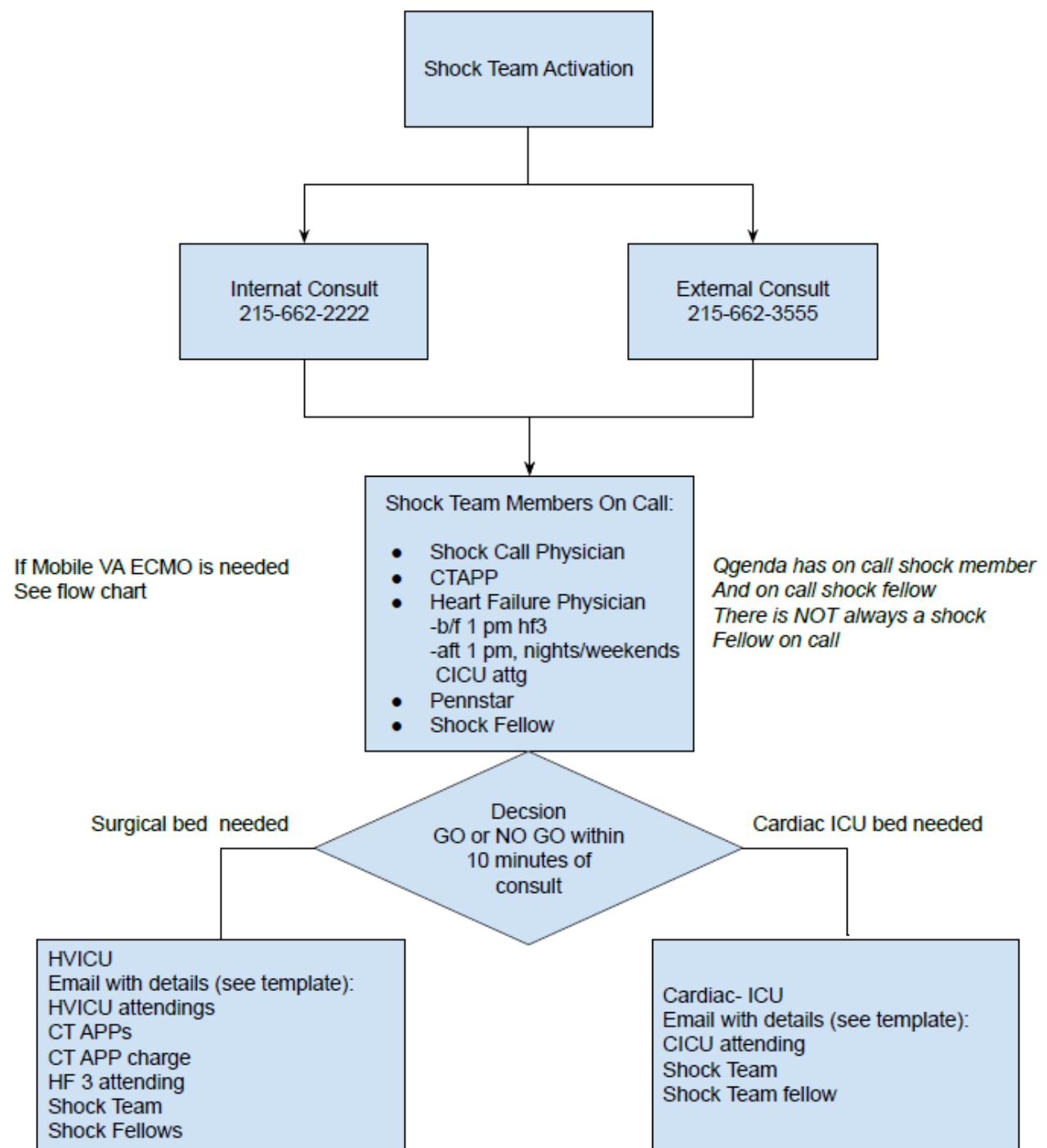
The National Cardiogenic Shock Initiative algorithm for rapid recognition and triage of patients with AMI and cardiogenic shock or cardiac arrest.²³ AMI: acute myocardial infarction; CHF-CS: congestive heart failure with cardiogenic shock; LTAC: long-term acute care; SNF: skilled nursing facility; PVAD: percutaneous ventricular assist device.

**Aponte. Methodist Debakey CV J 2020

*Van Diepen. AHA Council on Clinical Cardiology; Council on CV and Stroke Nursing; Circulation 2017;136:e232-e268.

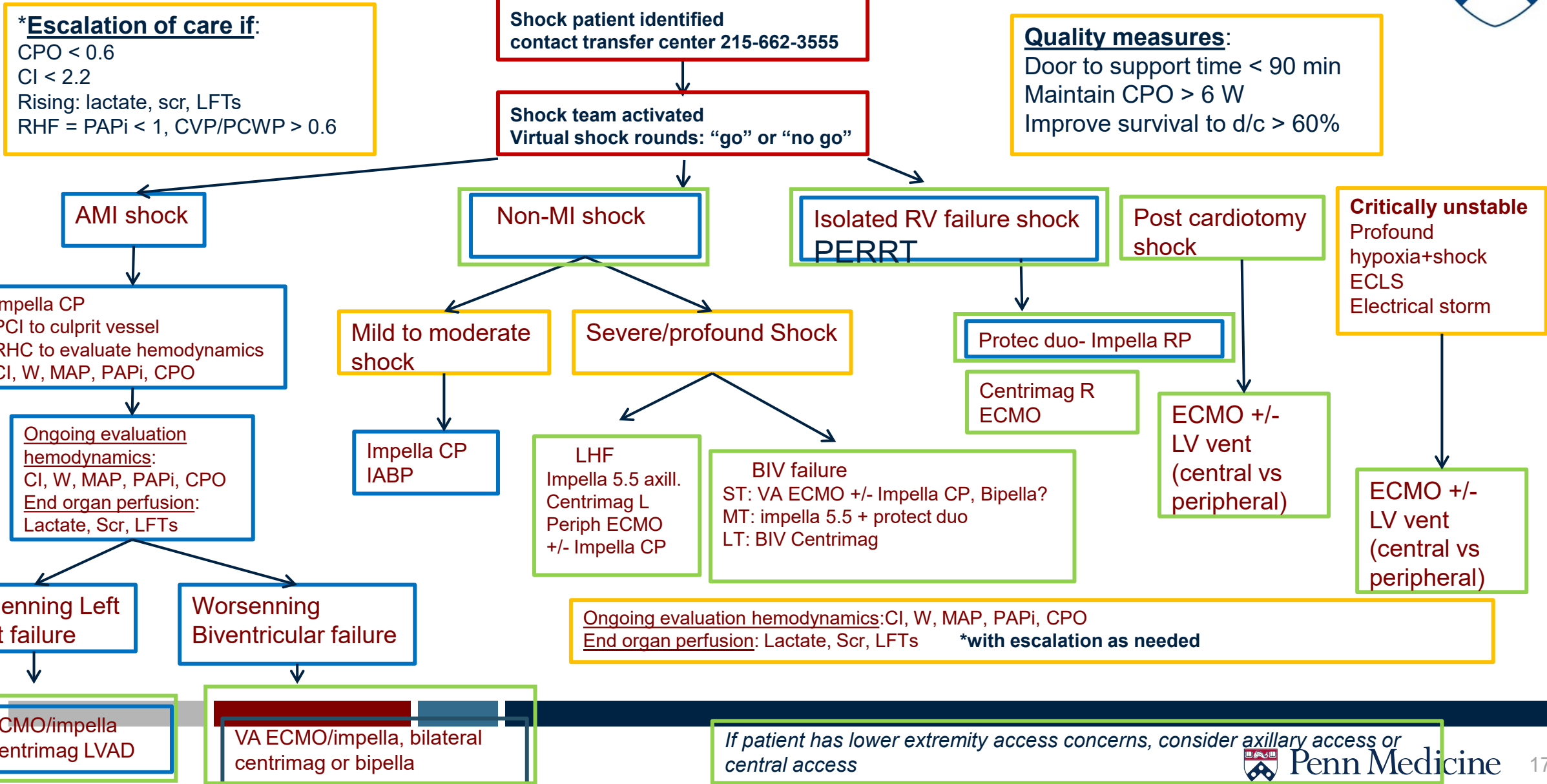
Level 1 Shock Hospital Proposal

- All advanced technology available for
 - Left sided support
 - Right sided support
 - Biventricular support
- Cardiac ICU with 24/7 coverage
- Specialists in
 - CT surgery
 - Advanced HF
 - Advanced cardiac diseases
 - Structural heart
 - Intensive care
 - Allied services (PT, ID, Nutrition, social workers, palliative care...)
- High volume: > 100 CS shock cases per year have a lower mortality rate than centers with < 30 cases/year (37% vs 42%) *
- With a standardized activation protocol as well as pathways of multidisciplinary communication and care



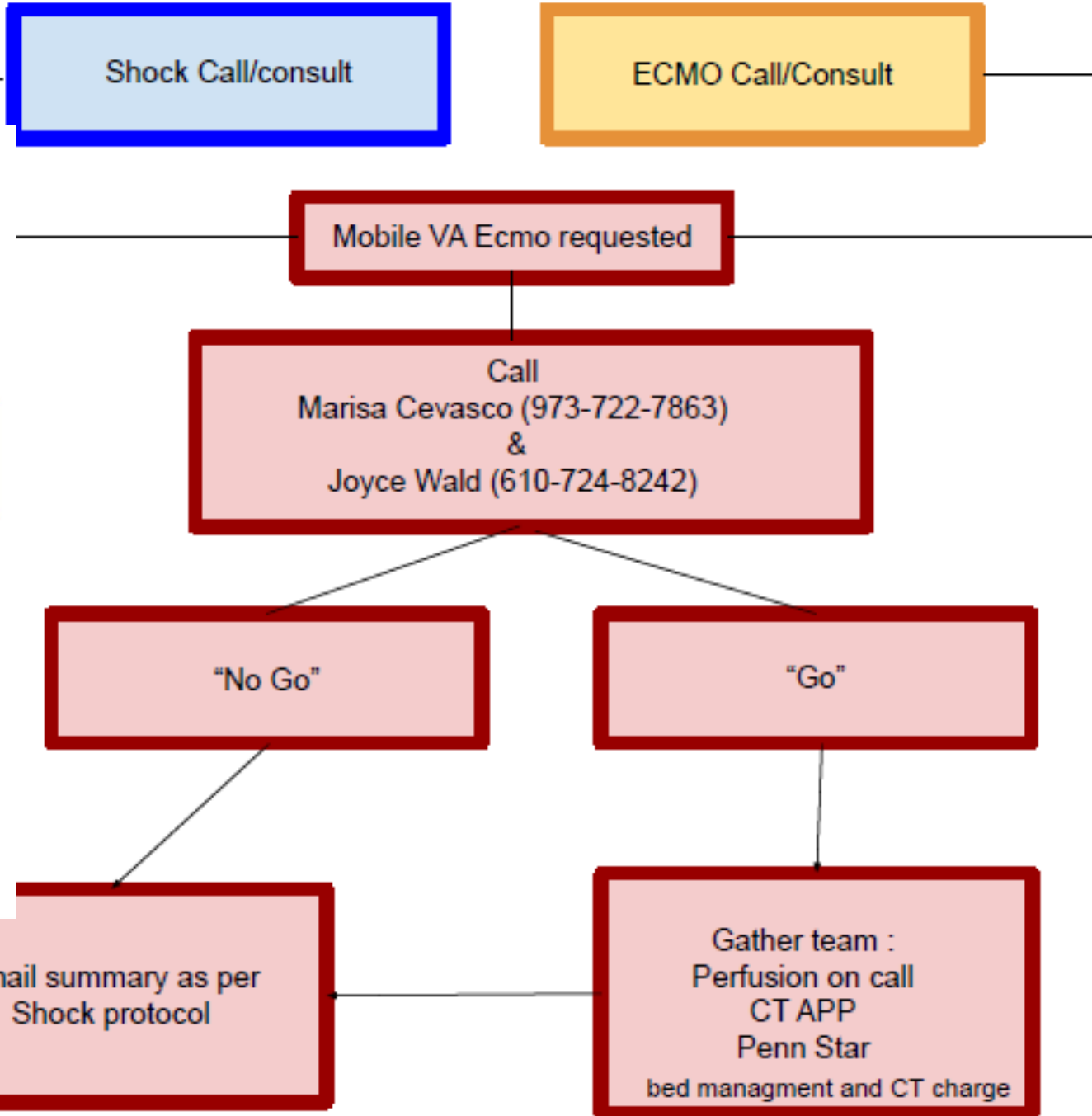
Shock Team Pathway

— Cardiac cath lab
— Operating room



Consider vascular access and type of support

24/7 access



Mobile VA ECMO Partner Hospital Check List

PPMC and HUP put more than 200 patients on ECMO annually. We established a VV ECMO program several years ago and are planning to launch a VA ECMO program in early 2021. ECMO inclusion and exclusion criteria have helped improve survival from 40% to 60% per year. The goals of agreement are early implementation of MCS and early escalation (if needed) to improve outcomes. This document outlines expectations of our Outside Hospital (OSH) partners for the VA Mobile ECMO program.

INITIATING A MOBILE VA ECMO

- Communicate with the Penn Medicine clinical mobile VA ECMO team prior to deployment of ECMO to ensure there is an exit strategy.
- If ECMO is an appropriate option, place patient on peripheral VA ECMO at OSH.
- Begin rapid transfer to Penn Medicine (target within 6-8 hours).

Mobile VA ECMO Surgical Team Members	
Initial contact – Penn Transfer center (215-662-3555) and ask for VA ECMO team on call.	
HUP	PPMC
Christian Bermudez (267-909-1655)	Matt Williams (267-441-0705)
Marisa Cevasco (973-722-7863)	Wilson Szeto (215-738-0396)
Josh Grimm (267-909-1655)	

CONFIGURATION

Ideally: arterial cannulation in the left, venous cannulation in the right, but if actively coding, both in one groin is acceptable.

EQUIPMENT

- Left FA:**
 - Females or small males: 15 fr. Maquet or 15 fr. Medtronic
 - Normal size males or large female: 17 fr. Maquet or 17-19 fr. Medtronic
 - Very large males: 19-21 fr. Maquet or Medtronic
- Right FV:**
 - Normal size male/large female: 25 fr. multi fenestrated Medtronic
 - Small female 22 fr. Edwards Quick Draw
- Distal perfusion SFA cannula:** If the leg feels cold and there is no DP or PT pulse by ultrasound, then a SFA cannula should be placed.
- Standard right radial arterial line
- Pump:** Short-term Maquet Rotaflow (we also have Cardiotemp and CentriMag for long-term support).
- Oximetry** of bilateral LE and forehead.
- If there is distal limb under perfusion: consider bridge perfusion to the leg.

ONGOING PATIENT MANAGEMENT

- If TEE is available, please have at bedside for deployment.
- Local cardiologist/intensivist should also be at bedside for ongoing medical management during cannulation.

Shock team call:
 This note contains the information from the referring provider(s).
 Plans may change based on evaluation and/or change in the patient's clinical [status](#)



Shock Team Call Note:	
Date of Call:	Time:
Primary Receiving Team: Transfer Level:	Shock Team Members involved with call:
Diagnosis: SCAI Classification: INTERMACs Stage:	Potential Escalation/Exit Plan: Reversible cause? tMCS candidate? Advanced therapy eval candidate? Were goals of care discussed with patient and family?
Referring (name/hospital/cell):	
tMCS POA:	
Weight:	
Oxygenation: If Intubated/ Airway comment: n/a	
Antiplatelet(s): n/a, last dose n/a	
ICD/Pacemaker: company	
Administrative:	
Insurance:	
Was Buy Back discussed?	
Emergency contact/cell:	
Items to be sent with PT: discs of important studies:	
Brief Clinical Summary as per referring provider:	
<p>***y/o with PMHX:</p> <p>Drip(s):</p> <p>Labs:</p> <p>Line(s):</p> <p>Advanced Questions: Support: Social: Tobacco: ETOH: Illicit/vaping: Comorbidities: ***</p> <p>Electronic signature: Joyce Wald, DO, FACC Cell 610-724-8242 Service – Cardiogenic Shock Team</p>	

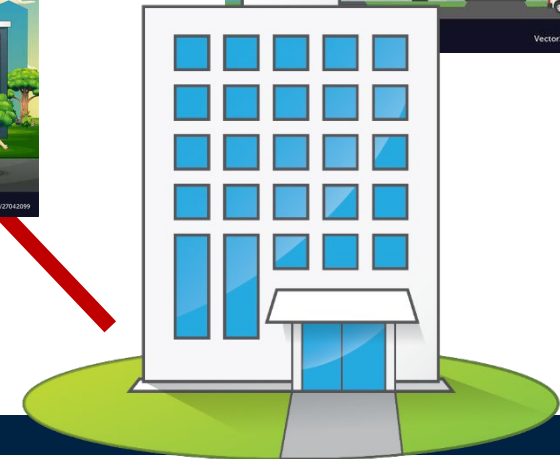
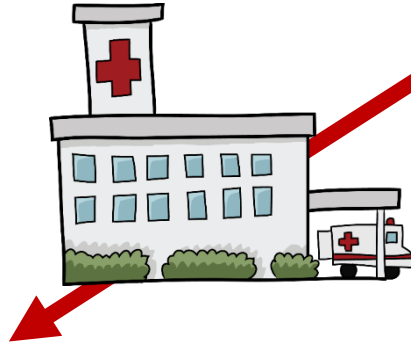
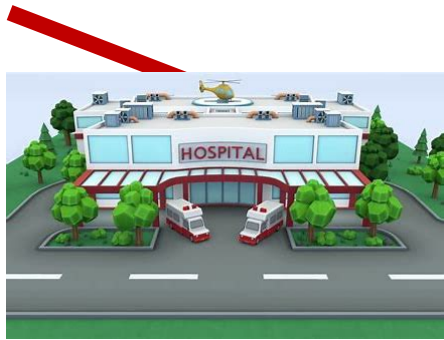
Standardized script

Complete information
database

*Weekly multidisciplinary
shock team rounds triggers
communication with
referring*

*Monthly academic review:
Current outcomes
Opportunities to improve
Research pursuits*







But if they come to you like this.....

In my opinion, the biggest issues:

- **Recognizing Normo- pressure CS**
- **Not understanding pressure vs perfusion**
- **And that all devices aren't the same**

• **EARLY RECOGNITION, SCAI B**
(the art of laying hands on a patient)

One of my pet peeves.....

All devices are not made the same

Know the limits of your device

Shock team members on the call: JW (HF1), cevasco (in transplant), CTAPP (n/a), penn star and thelma

Diagnosis: AMI-CS

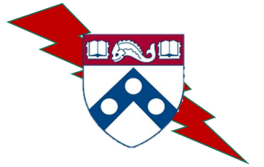
Exit plan: if wakes up, VAD, pVA ECMO if needs escalating support

SCAI: D, INTERMACs 2

Primary receiving team: CCU, HF1/Wald

Referring: [REDACTED]

Penn Medicine



Shock Team

History as per referring:

53 yo male with PMHx of obesity, DM II (not well controlled, but was working hard on it the last few months), HTN who had no prior symptoms and was working out in the yard with his wife on fencing when he went down. She did NOT perform CPR and it took 10 minutes for 911 to get there where they found him to be in VT— shocked and EPI x 5 rounds with ROSC.

Taken to ER the straight to cath lab where LHC showed: CTO Lcx (prox) and CTO distal RCA (RPDA is out) both have collaterals. LAD has 40-50% ds and felt NOT to require intervention.

RHC: 19 65/11 (39) 26 9.65/3.61 81% MAP 81 on levo of 12

Lactate of 9.8

IMPELLA CP placed— levo down to 4

In AUTO mode

NO PERCLOSE needles left

Advanced questions

Tobacco

No etoh/ivda

Supported by wife, son and daughter

Sounds like DM was not controlled- and tol

PLEASE COOL HIM

Drop P level to 4, check hemos and add inotropes as needed

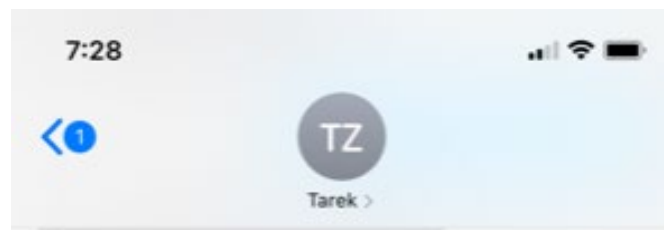
Target CI > 2.2, MAP 65 or greater

PLEASE COOL HIM

Drop P level to 4, check hemos and add inotropes as needed

Target CI > 2.2, MAP 65 or greater

FILMS TO COME WITH PATIENT



Today 7:27 AM

[Redacted] Just FYI Index was 1.7 on impella p6 so we went to p8, waiting for new hemos and echo this morning. Having a lot of tri and bigeminy so was hesitant to start milrinone upfront but may have to if index remains low on p8.

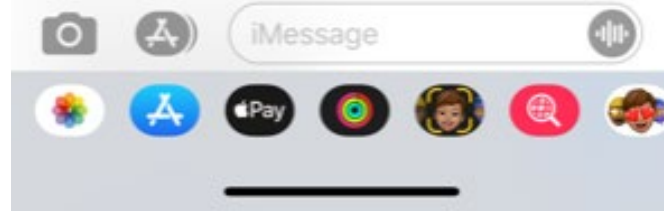
No no no
This is not a full support device
please add milrinone
Whats the ldh?
Is he peeing
They should have called me

Okay

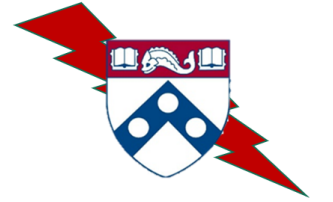
Whats the lactate

Will go back down

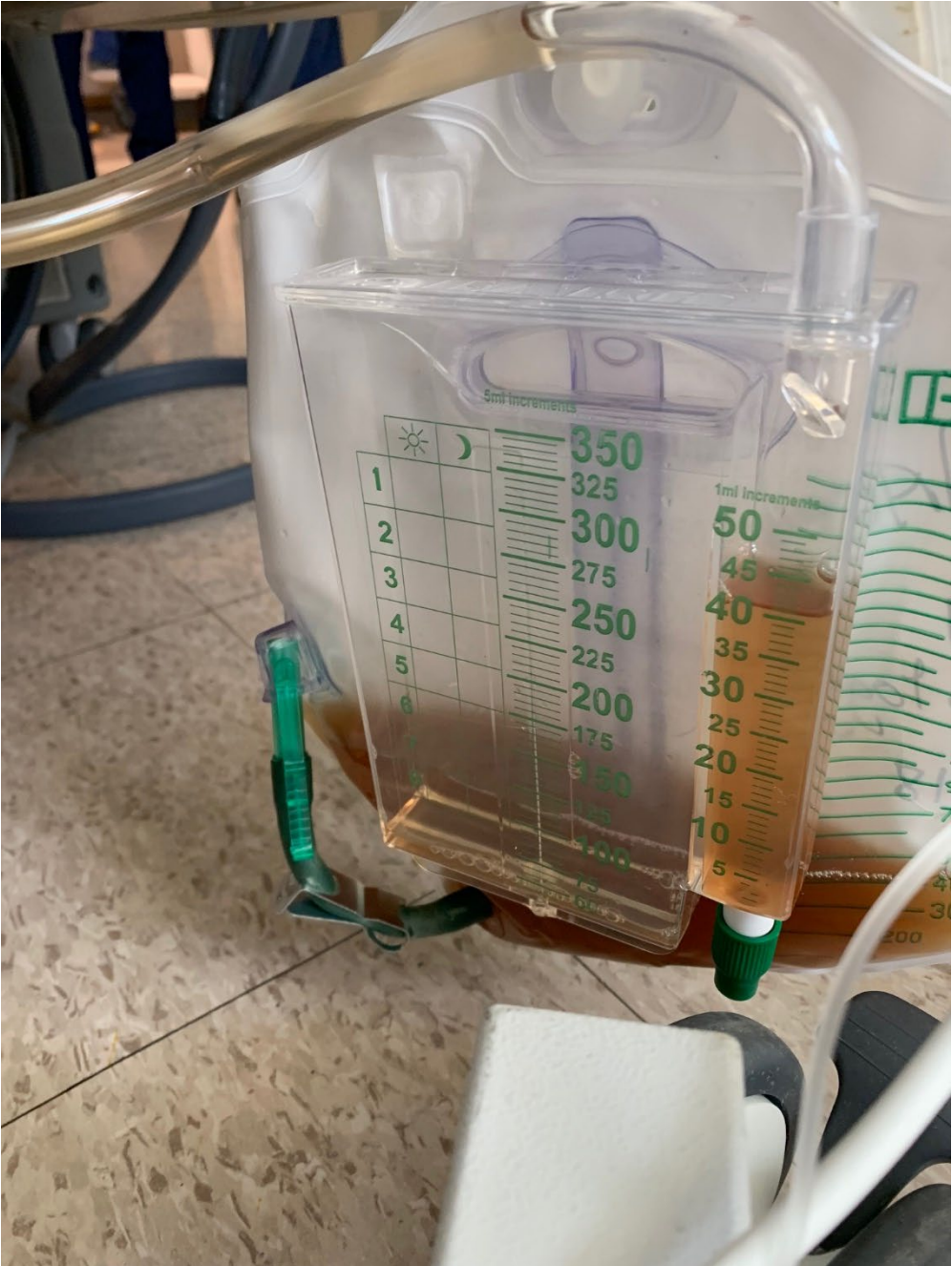
3.7



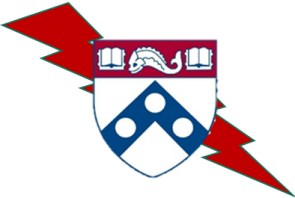
Penn Medicine



Shock Team



Penn Medicine



Shock Team

Another one of my pet peeves.....

"Sometimes you need to look at Life
from a different perspective."



Evaluating the Value of VAD Affiliations

Shared care model:

“you are sharing our secrets” vs

“ We are building a relationship that they will build with someone else if we don’t do it”

Strategic Decision Support

Corporate Finance

February 2015



Summary Dashboard: Affiliate Trends

	Shared Care #1	Shared Care #2	Shared Care #3	Shared Care #4	All Other Markets
UPHS Heart Transplant Market Share	▲	▲	▲	↔	▼
UPHS + Affiliate VAD Market Share	▲	▲	▲	▲	▼
UPHS VAD Profitability	▲	▲	▲	↔	▲
UPHS Market Share – Other Cardiac Surgery	↔	↔	▲	▲	▼

As Medical Director of Practice Development for HF, Transplant and MCS Programs at Penn

- ▶ Tiered system of relationships: out reach 2-3 times a month to continue to build

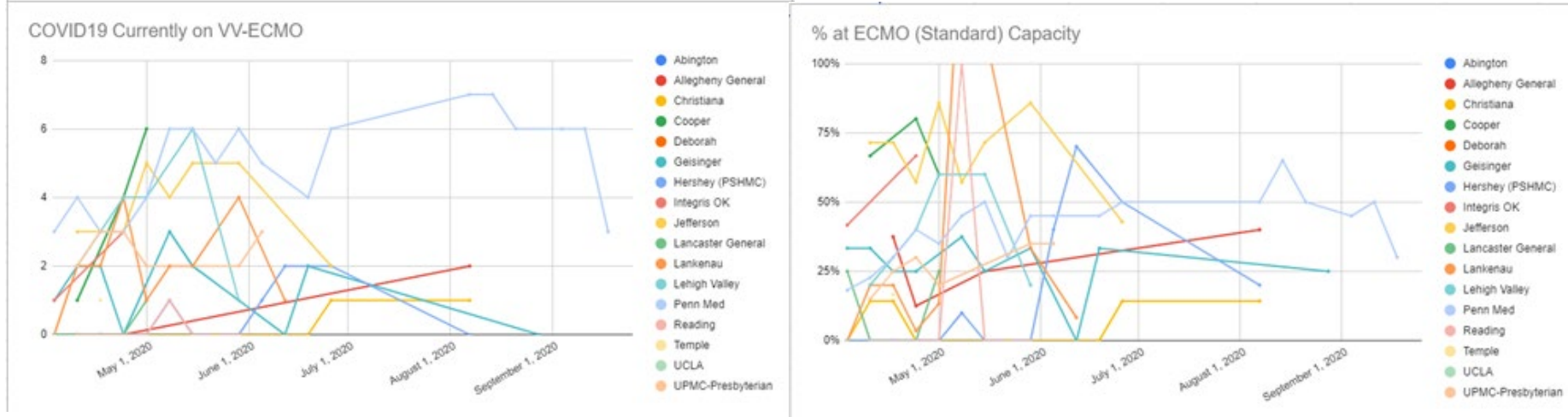
EVERY INTERACTION IS A CHANCE AT A RELATIONSHIP

COMMUNICATION COMMUNICATION COMMUNICATION WITH REFERRINGS (community partners)

- ▶ Shared care: these are the centers we have a contractual relationship with to help with their advanced HF and VAD patients and transplant referrals would come to Penn. Monthly multidisciplinary meetings.
- ▶ Strong relationship: this center we do not have a contract but we are the “go to center” for their heart and vascular patients. We have routine meetings to discuss patients. Routine teach backs and educational opportunities
- ▶ Cultivating relationship: this center sends some patients, but we can do better

Regional Monitoring ECMO Covid-19 in times of crisis

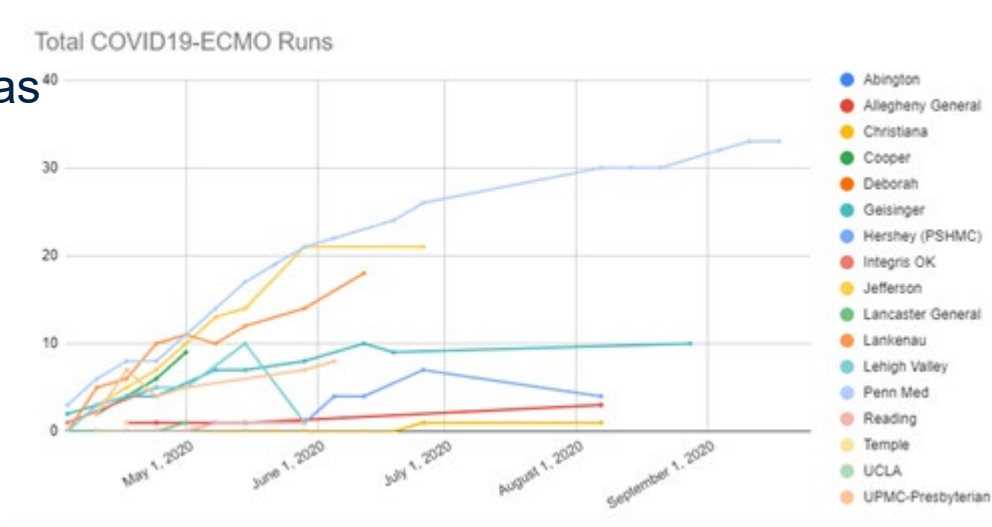
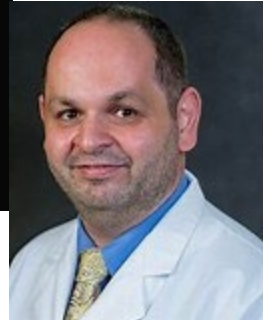
Learn How to Pivot



Salim Olia

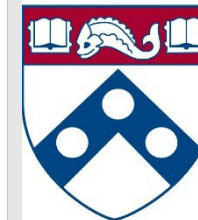


Nawar Al-Rawas



Joyce Wald

Nawa



Preface: This document is intended to help guide and assist the utilization of ECMO specifically with regards to the current COVID19 pandemic. This guidance is expected to change and evolve as the information and our understanding develops. Selection criteria and stop triggers will be dynamic and adaptable to the resources and evidence available to support those most likely to benefit from ECMO both in survival of the acute phase and subsequent life expectancy.

+

Nominal Indications for VV ECMO in COVID19

- ARF PaO₂/FiO₂ <80mmHg for >6h
- ARF PaO₂/FiO₂ <50mmHg for >3h
- pH<7.25 with PaCO₂ >60mmHg for >6h

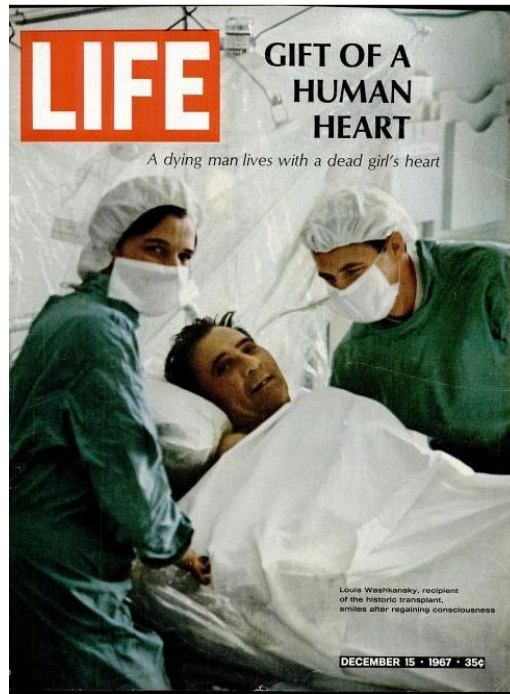
Standard Contraindications

- Age > 65
- BMI > 45
- Chronic non-recoverable lung disease
 - Severe COPD

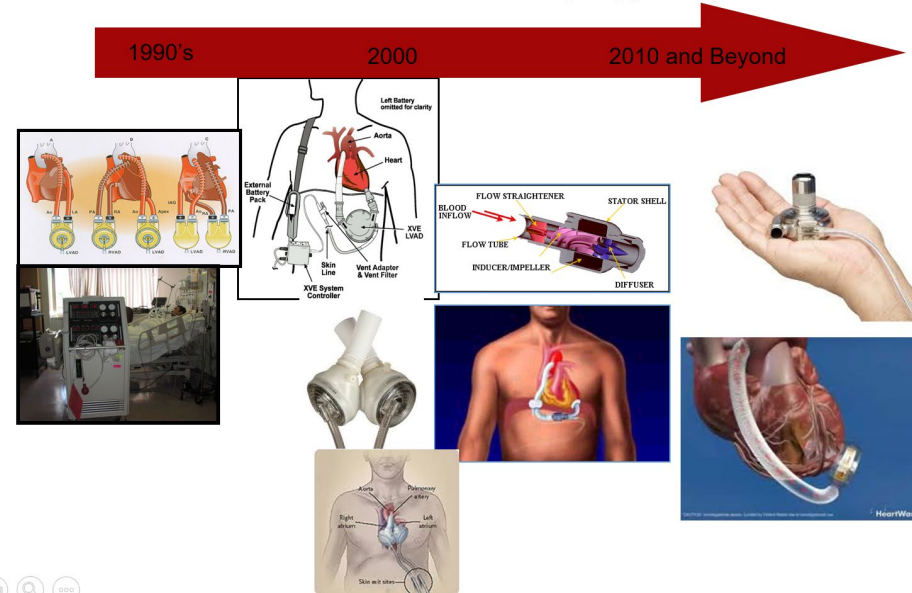
<p>< 50% Capacity</p> <ul style="list-style-type: none"> • Approximate survival >57% • Standard selection criteria and Standard exclusion criteria <ul style="list-style-type: none"> ○ Mechanical ventilation <10 days
<p>50-80% Capacity</p> <ul style="list-style-type: none"> • Approximate survival >76% • Enhanced selection criteria and enhanced exclusion criteria <ul style="list-style-type: none"> ○ Mechanical ventilation <7 days ○ No pre-ECMO cardiac arrest ○ P_{plat} <40 cmH₂O
<p>> 80% Capacity</p> <ul style="list-style-type: none"> • Approximate survival >92% (when age <50 y/o) • Enhanced selection criteria and enhanced exclusion criteria <ul style="list-style-type: none"> ○ Mechanical ventilation <5 days

Center	Current Capacity (%)		COVID19+ Currently on		Support Duration (days)		Completed ECMO Runs				Center Total	Date Updated
	Standard	Maximum	VV-ECMO	VA-ECMO	Mean	Range	Pts Weaned	Mortality on ECMO	Total	% Mortality on ECMO	Ongoing & Completed	
Abington	0.0	0.0	0	0		0-0	0	0	0		0	5/28/2020 16:29:29
Allegheny General	25.0	20.0			3	3-3	0	1	1	100.0%	1	5/15/2020 7:46:55
Christiana	0.0	0.0	0	0		0-0	0	0	0		0	5/29/2020 13:48:44
Cooper	60.0	75.0	2	0	14	11-17	3	0	3	0.0%	5	5/1/2020 13:15:52
Deborah	0.0	0.0	0	0		-			0		0	4/10/2020 12:15:23
Geisinger	33.3	16.7	1	0	11	8-20	6	1	7	14.3%	8	5/29/2020 9:06:29
Hershey (PSHMC)	40.0	33.3	1	1	5	3-5	0	2	2	100.0%	4	6/4/2020 12:18:15
Integrus OK	66.7	36.4	3	0	12	4-25		2	2	100.0%	5	4/30/2020 15:55:57
Jefferson	85.7	85.7	5	0	12	6-30	10	6	16	37.5%	21	5/29/2020 14:47:00
Lancaster General	25.0	16.7	1	0	1	-1	0	0	0		1	5/1/2020 13:13:27
Lankenau	33.3	26.7	4	0	13	9-23	8	2	10	20.0%	14	5/28/2020 19:05:57
Lehigh Valley	20.0	20.0	1	0		-			0		1	5/29/2020 13:56:27
Penn Med	45.0	36.0	5	0	15	1-51	11	6	17	35.3%	22	6/10/2020 9:08:02
Reading	0.0	0.0	0	0	7	7-7	0	1	1	100.0%	1	5/29/2020 13:05:36
Temple	16.7	14.3	1	0		-			0		1	4/16/2020 5:58:33
UCLA											0	
UPMC-Presbyterian	35.0	31.8	3	0	22	2-36	3	2	5	40.0%	8	6/6/2020 9:18:57
York											0	
Region Summary			27	1	10	0-51	41	23	64	35.9%	92	

Reviewed and approved by hospital CEOs



Permanent Mechanical Circulatory Support



Another one of my pet peeves.....

Having an exit strategy: recovery vs advanced therapies to avoid futile deployment of advanced support

Good stewards of resources

device therapy

our team members



THE CHOIR

YOU'RE PREACHING TO IT

Systems of care have historically
*Improved outcomes

AMI
Stroke (by 12%)
Trauma (by 15%)
Acute aortic dissection (by 43%)
Cardiac Arrest (by 46%)

But all are kinda easy to identify

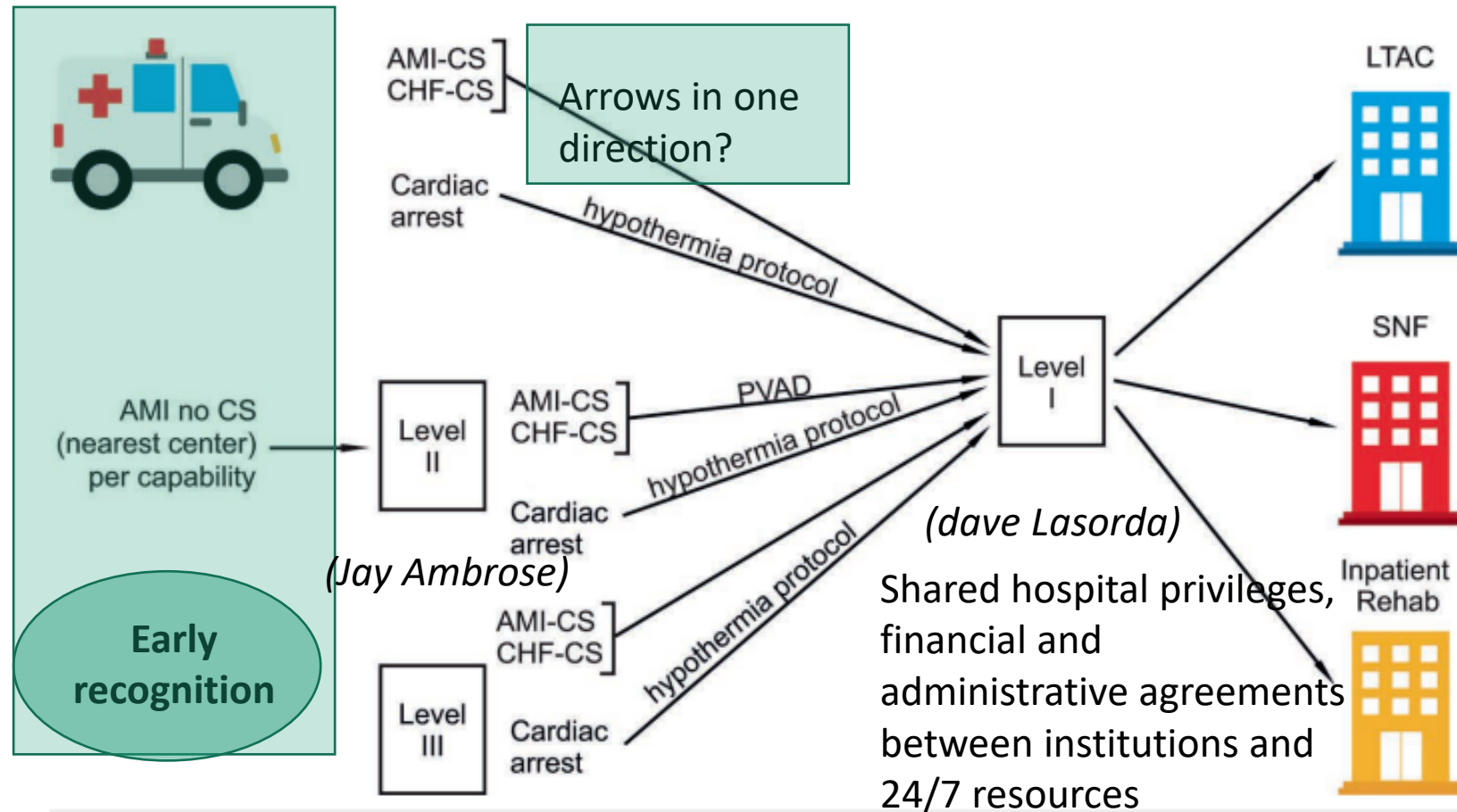


Figure 1.

The National Cardiogenic Shock Initiative algorithm for rapid recognition and triage of patients with AMI and cardiogenic shock or cardiac arrest.²³ AMI: acute myocardial infarction; CHF-CS: congestive heart failure with cardiogenic shock; LTAC: long-term acute care; SNF: skilled nursing facility; PVAD: percutaneous ventricular assist device.

*Van Diepen. AHA Council on Clinical Cardiology; Council on CV and Stroke Nursing; Circulation 2017;136:e232-e268.

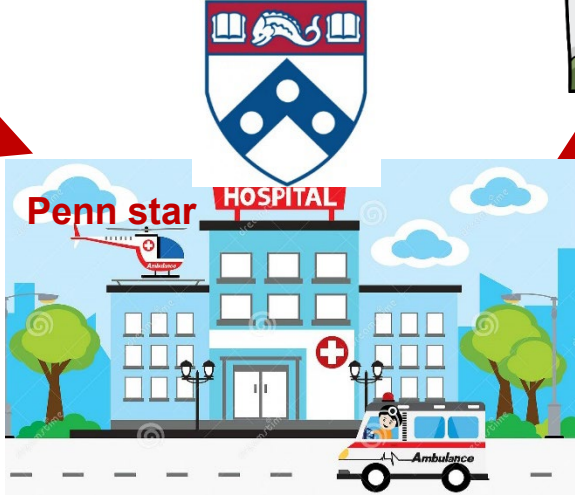
Systems of Care is the way to go!



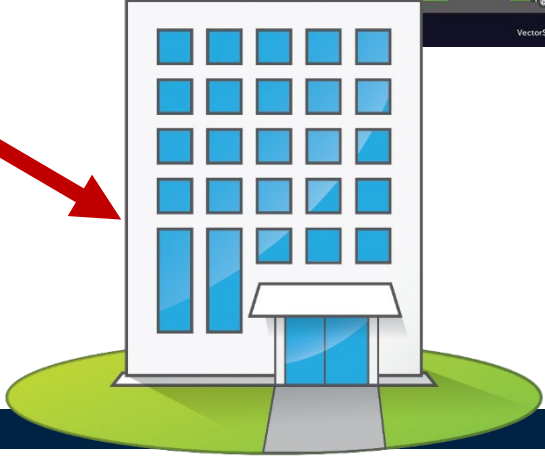
Level III



Level II



Level I



***Door to appropriate therapy < 90 minutes:**
Early recognition- and we can advise on appropriate therapy until transferred
Early consultation (RELATIONSHIP!)
24/7 availability of Level I & II centers*

The call to collaborate!!!!!!

2023 Chapter + Section Grant Application
due by 5:00 pm Eastern time – Monday December 12, 2022



Now submitted to ISHLT

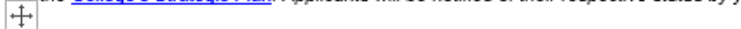
Instructions:

Domestic and international Chapters and member Sections wishing to jointly apply for funds from ACC to support innovative strategic initiatives should provide the below information. Applications, which may include supplemental materials, should be sent to Miriam Surdin at msurdin@acc.org no later than Monday, December 12, 2022 by 5 pm Eastern.

Chapter Section Grant Recipients will be announced in February.

Recipients of Chapter Section Grants will need to submit a signed agreement and then receive the funds to proceed. *Progress reports for the 2023 awarded grants will be due quarterly from the receipt of funds: July 2023, October 2023, and January 2024. A final report and PPT presentation of the results of the project will be required by May 2024 (these will be posted in the Grants section of the BOG Portal).*

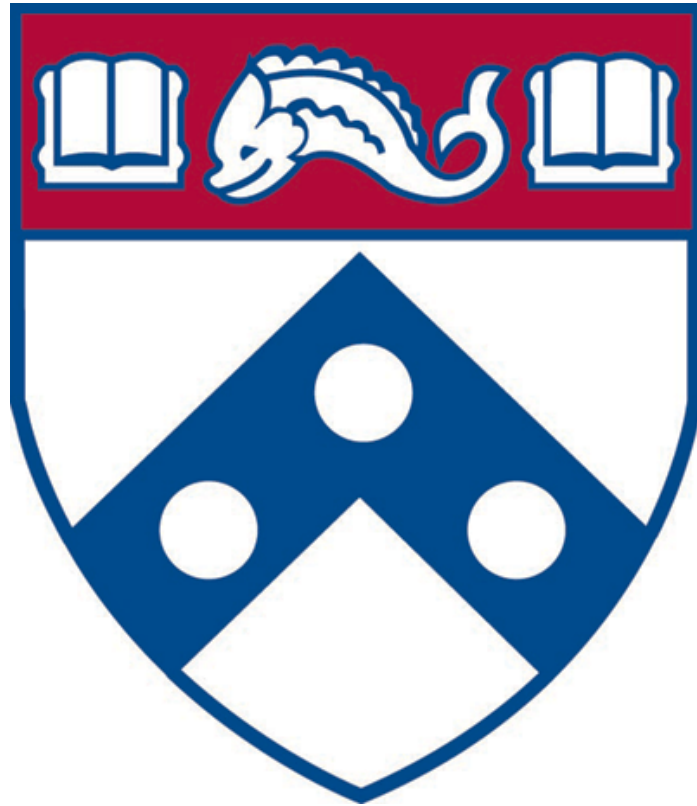
Requests will be evaluated based on demonstrated need, innovativeness, feasibility, the [College's Strategic Plan](#). Applicants will be notified of their respective status by y



Chapter(s):
Philadelphia East Chapter, Florida Chapter, Northern California Chapter, Long Island Chapter, Manhattan Chapter
Section(s):
Critical Care Cardiology
Main Chapter Contact (Name and Email):
Robert Roswell (RRoswell@northwell.edu)
Main Member Section Contact (Name and Email):
Joyce Wald (Joyce.wald@penntermcare.upenn.edu)
Main Point of Contact for the Grant (Name and Email):
Joyce Wald, Joyce.wald@penntermcare.upenn.edu
Name of the Grant:
SEE CS SHOCK: Standardization, Expansion and Education for Cardiogenic Shock: Standardizing the multidisciplinary approach to cardiogenic shock: early identification, building networks and improving access to care.
Summary of the Grant Project:
2-3 sentences that describe your overall project and need being addressed. This is your "elevator speech" which explains your project. Should your project be selected for funding, it will be used in website and marketing materials to describe your project.

Name of the Grant:
SEE CS SHOCK: Standardization, Expansion and Education for Cardiogenic Shock: Standardizing the multidisciplinary approach to cardiogenic shock: early identification, building networks and improving access to care.

Mission:
The academic opportunities to gather and share data should include the community teams from where the patient(s) originated



Thank You!!