SHOCK DIFFERENTIATION

Four mechanisms · four haemodynamic fingerprints

READ THE *numbers*

THE FOUR TYPES

DISTRIBUTIVE
Vasodilation

Sepsis, anaphylaxis, neurogenic, adrenal

CARDIOGENIC
Pump failure

MI, myocarditis, arrhythmia, valve

HYPOVOLAEMIC
Volume loss

Haemorrhage, GI / renal / third-space

OBSTRUCTIVE
Mechanical block

Tension pneumothorax, tamponade, PE

HAEMODYNAMIC FINGERPRINTS

↑ *high* ↓ *low* *N normal*

Parameter	Distributive	Cardiogenic	Hypovolaemic	Obstructive
Preload (CVP)	↓ / N	↑	↓	↑
Wedge (PCWP)	↓ / N	↑	↓	↓ *
Cardiac output	↑ / N	↓	↓	↓
SVR (afterload)	↓	↑	↑	↑
$ScvO_2$	↑	↓	↓	↓

** Tamponade raises PCWP.* *Normal: CI 2.5-4.0 · SVR 800-1200 · CVP 2-8 · PCWP 6-12 · $ScvO_2$ ≥ 70%.*

BEDSIDE PHENOTYPE

WARM
Vasodilated: flash cap refill, bounding pulses, wide pulse pressure

= Distributive (early sepsis, anaphylaxis, neurogenic)

COLD
Vasoconstricted: cool mottled skin, refill > 3 s, narrow pulse pressure

= Cardiogenic · Hypovolaemic · Obstructive

BEDSIDE WORKUP

phenotype in minutes

POCUS · RUSH exam
Pump (LV / RV function), tank (IVC size & collapsibility, lung B-lines), pipes (aorta). Effusion, pneumothorax.

Fluid responsiveness
Passive leg raise or dynamic indices (stroke-volume / pulse-pressure variation > 12-13%). Give fluid only if responsive.

Perfusion markers
Serial lactate and clearance; $ScvO_2$; urine output; mentation and capillary refill. Target MAP ≥ 65.

FIRST MOVES BY TYPE

DISTRIBUTIVE
Fluids + norepinephrine; septic: antibiotics < 1 h + source control; anaphylaxis: IM adrenaline 0.5 mg.

CARDIOGENIC
Avoid boluses; dobutamine ± norepinephrine; revascularise MI; mechanical support if refractory.

HYPOVOLAEMIC
Stop the loss; balanced crystalloid; haemorrhage: blood 1:1:1 + TXA + definitive haemostasis.

OBSTRUCTIVE
Decompress tension pneumothorax; pericardiocentesis for tamponade; thrombolysis for massive PE.

PEARLS & PITFALLS

- Shock is often mixed (septic patient with cardiac dysfunction) - re-phenotype with POCUS often.
- Do not fluid-load cardiogenic or obstructive shock - you worsen congestion; scan before boluses.
- A normal blood pressure does not exclude shock - use lactate, perfusion and mentation.
- A collapsing IVC favours fluid responsiveness; a plethoric IVC warns against more fluid.

References: Surviving Sepsis 2021 · SCAI Cardiogenic Shock 2022 · ESC Acute PE 2019 · Resus Council anaphylaxis.

Educational aid; verify doses against local protocol and patient factors.