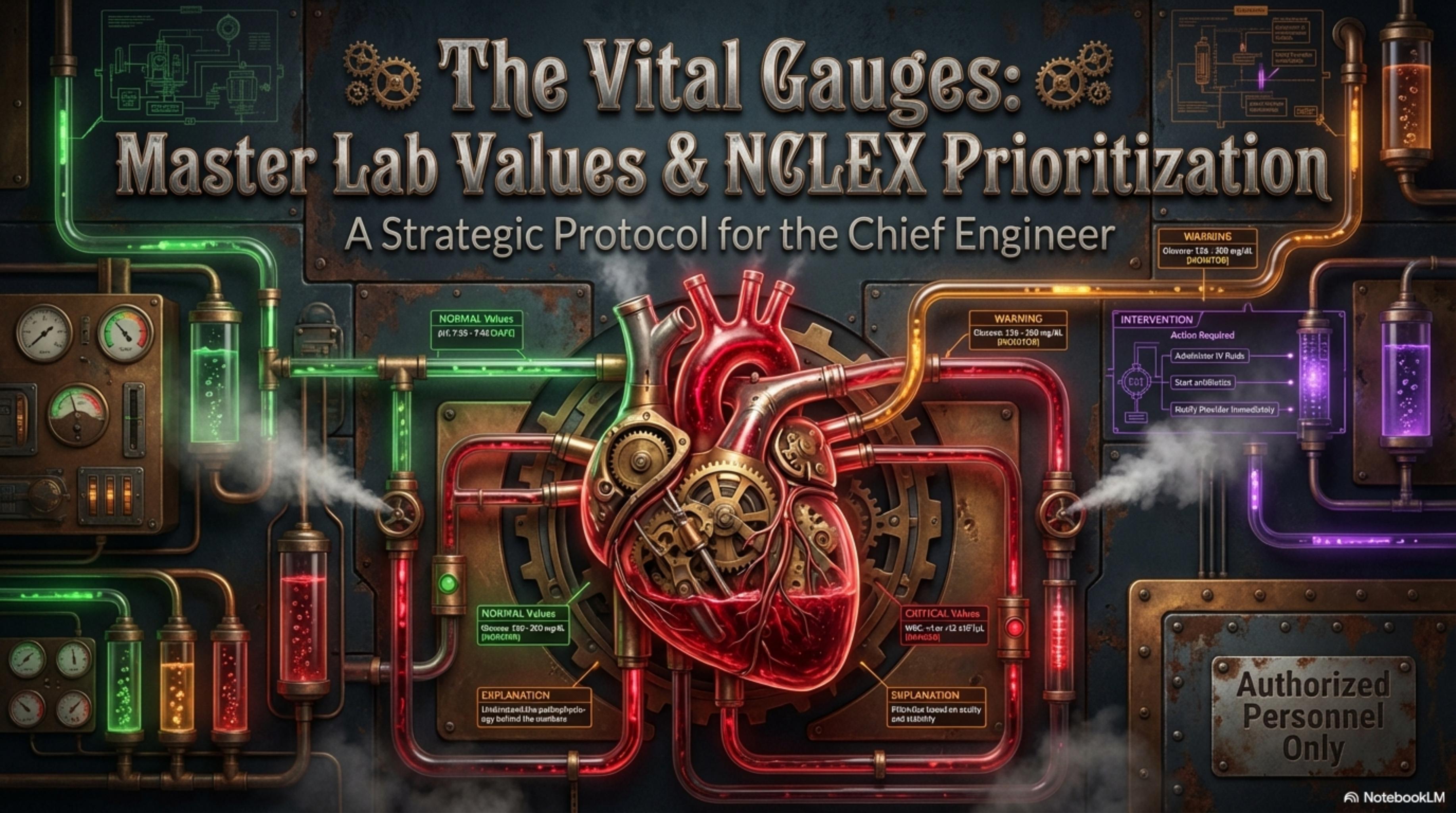


# The Vital Gauges: Master Lab Values & NCLEX Prioritization

A Strategic Protocol for the Chief Engineer



# The Priority Protocol (The ABCD Framework)



# The Filter (Renal Function)

Pressure

Pressure

Pressure

Exception:  
Dye procedures  
= Level B.

Creatinine  
(Serum)

0.6 - 1.2 mg/dL

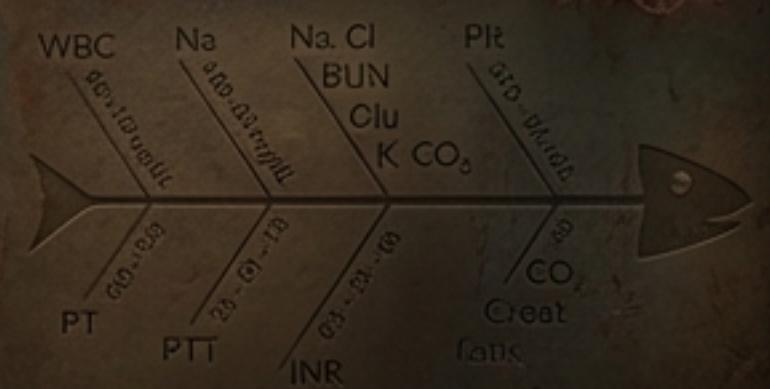
Level A: Best indicator of kidney function. Not an acute emergency.

BUN  
(Blood Urea Nitrogen)

8 - 25 mg/dL

Level A/B: Indicates Dehydration.

BUN = Hamburger Buns come in packs of 8. (Range 8-25).



# Viscosity Control (Coagulation - INR)



Normal INR: **0.8 - 1.2**

Therapeutic (Warfarin): **2 - 3**

**CRITICAL SCENARIO (Level C):**  
**INR > 4**

## Action Protocol

- 1. HOLD**  
(Warfarin)
- 2. ASSESS**  
(Bleeding)
- 3. PREPARE**  
(Vitamin K)
- 4. CALL**  
(Provider)

**DANGER: HIGH VOLTAGE**

# The Energy Source (Potassium - K<sup>+</sup>)

Normal Range: 3.5 – 5.3 mEq/L

Low (< 3.5) = Level C



Action: Assess Heart ->  
Prepare K+ -> Call.

High (5.4 – 5.9) = Level C



Action: Hold K+ -> Assess Heart ->  
Prepare Kayexalate/D5W/Insulin -> Call.

High (> 6.0) = Level D (DEADLY)



Action: STAT. Do Not Leave  
Bedside. Team approach required.

Mnemonic: “Kalium” pumps the heart.

# The Pressure Valves (pH Balance)



pH: 7.35 – 7.45

$\text{HCO}_3$  (Bicarb): 22 – 26

$\text{PaCO}_2$ : 35 – 45

**CRITICAL ALERT (Level D):**  
pH in the 6s (e.g., 6.8).  
The Engine is Shutting Down.

## Action Protocol ↴

1. Assess Vitals (Check for life)
2. Call Provider Immediately
3. STAY AT BEDSIDE

Mnemonic: R.O.M.E.  
(Respiratory Opposite, Metabolic Equal)

# RESPIRATORY EXHAUST (CO<sub>2</sub>)

Normal CO<sub>2</sub>: 35 – 45 mmHg

High (50s) – Level C

**Pathology:** Retaining CO<sub>2</sub> (Non-COPD).

**Action:** Pursed Lip Breathing.



High (60s) = Respiratory Failure (Level D)

**Action Protocol:** Prepare to Intubate/Ventilate → Call Respiratory → Call MD. DO NOT LEAVE ROOM.

ALARM

# Oxygenation (Intake Mixture)

Arterial

pO<sub>2</sub>

mmHg

pO<sub>2</sub> (Arterial): 78 – 100 mmHg  
SaO<sub>2</sub> (Saturation): 93 – 100%

SaO<sub>2</sub> (Saturation): 98%

Prioritized

Level C: pO<sub>2</sub> 70-77  
-> Action: Give Oxygen.

Level D (Respiratory Failure):  
pO<sub>2</sub> in the 60s -> Action: Intubate.

Respiratory Failure Criteria:  
CO<sub>2</sub> > 60 AND pO<sub>2</sub> < 60.

# Fluid Dynamics (Sodium & Electrolytes)

## WARNING

(Level B)

Abnormal Na+  
-> Assess  
Dehydration or  
Overload.

Sodium

Swell

## CRITICAL

(Level C)

Abnormal Na+  
WITH Change  
in LOC ->  
Safety Issue.

Sodium (Na<sup>+</sup>): 135 – 145 mEq/L

Magnesium (1.3 – 2.1) = 'Mellows Muscles' (Low = Twitching)

Calcium (9.0 – 10.5) = "Contracts Muscles" (Low = Tetany)

# Hematology (Fuel Quality)

Hemoglobin (Hgb): 12 – 18 g/dL

Hematocrit (Hct): 36 – 54% (3x Hgb)

$$\text{Hgb} \times 3 = \text{Hct}$$

**Hgb 8 – 18**

**Action:** Assess bleeding,  
Prepare Transfusion, & Call.

**Level B:** Hgb 8 – 11 -> **Action:**  
Assess bleeding/anemia/malnutrition.

**Level C:** Hgb < 8 -> **Action:** Assess  
bleeding, Prepare Transfusion, Call.

# Infection Control (WBCs)

BIOHAZARD/QUARANTINE

Total WBC: 5,000 – 11,000

ANC (Absolute Neutrophil Count): > 500

CD4: > 200

## CRITICAL (Level C)

Critical if:

WBC < 5,000 **OR**

ANC < 500 **OR** CD4 < 200

## NEUTROPENIC PRECAUTIONS:

- ✿ Strict handwashing
- ✿ No fresh flowers or potted plants
- ✿ No standing water (pitchers)
- ✿ Avoid crowds

# Platelets (Hull Integrity)

Platelets:

150,000 - 400,000

Level C: < 90,000

-> Action: Bleeding Precautions  
(Soft toothbrush, No IM injections).

Level D (DEADLY): < 40,000

-> Action: High risk of spontaneous hemorrhage.

| Value                                 | Abbreviation | Unit    | Normal Range |
|---------------------------------------|--------------|---------|--------------|
| Prothrombin Time                      | PT           | Seconds | 11 - 14      |
| Partial Thromboplastin Time           | PTT          | Seconds | 25 - 35      |
| International Normalized Ratio        | INR          |         | 0.8 - 1.2    |
| Activated Partial Thromboplastin Time | aPTT         |         | 1.5 - 2.5    |

# Engine Diagnostics (Cardiac Labs)

**Troponin > 0.5 = MI**  
(Infarction).

Priority: Acute/Critical.

**Troponin > 0.5 = MI**  
(Infarction).

Priority: Acute/Critical.

**BNP > 100 = CHF (Failure).**

Priority: Level B  
(Chronic Monitor).

**Strategy:** Do not prioritize a high BNP (Chronic) over an acute lab like Potassium or Troponin.

# THE THERAPEUTIC INDEX (PHARMACOLOGY)

Lithium      Digoxin      Aminophylline      Dilantin      Bilirubin

Lithium      Digoxin      Aminophylline      Dilantin (Phenytoin)      Bilirubin (Neonatal)

|                       |                       |
|-----------------------|-----------------------|
| Lithium:              | 0.6 - 1.2 (Toxic > 2) |
| Digoxin:              | 0.5 - 2 (Toxic > 2)   |
| Aminophylline:        | 10 - 20 (Toxic > 20)  |
| Dilantin (Phenytoin): | 10 - 20 (Toxic > 20)  |
| Bilirubin (Neonatal): | 10 - 20 (Toxic > 20)  |

The Magic 20s:  
Aminophylline, Dilantin,  
Bilirubin

# The Master 'Level D' Checklist

EMERGENCY  
SHUTDOWN

DO NOT LEAVE THE BEDSIDE.

1. pH in the 6s
2. Potassium (K+) in the 6s
3. CO2 in the 60s
4. pO2 in the 60s
5. Platelets < 40,000

The Chief Engineer maintains the watch.