

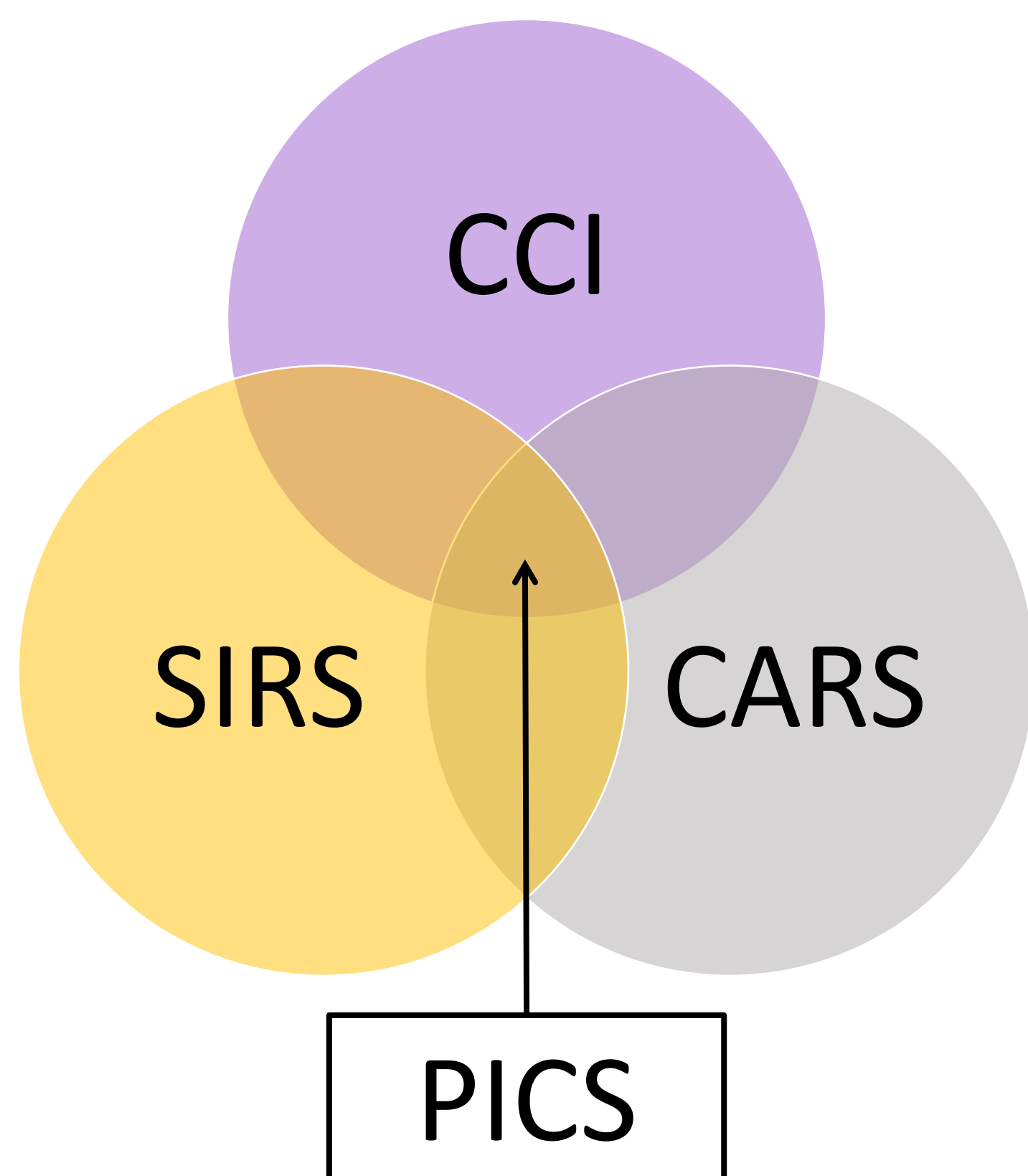
Clinical Case Presentation of Persistent Inflammatory, Immunosuppressed, Catabolic Syndrome (PICS)

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What is PICS?

As more patients are surviving initial traumas, new long-term complications are developing. PICS presents when initial inflammation (SIRS) and initial immunosuppression (CARS) persist for >2 weeks, leading to prolonged ICU stays, repeat infections, muscle wasting, and poor outcomes.



CCI = Chronic Critical Illness; CARS = Compensatory Anti-Inflammatory Response Syndrome; SIRS = Systemic Inflammatory Response Syndrome

Nutrition Research:

There is no nutrition research regarding PICS; all guidelines are based on research for similarly catabolic disease states such as cancer cachexia, major burns, and sarcopenia of aging.

Nutrition Guidelines:

- Feed to estimated energy expenditure
- Provide high protein (1.2-2.0g/kg/d)
- *Use of immune-enhanced formulas
- *Tight blood glucose control
- *Use of anabolic adjuncts

**research required before routine use*

Case:

Mr. AZ is a 67-year-old male admitted after a bicycle crash with multiple fractures and a pneumothorax. As his original injuries healed, he developed sepsis and multiple infections, which are common complications of PICS. He spent 28 days in the ICU and 40 in the hospital before discharging to a long-term care facility.

Nutrition Assessment:

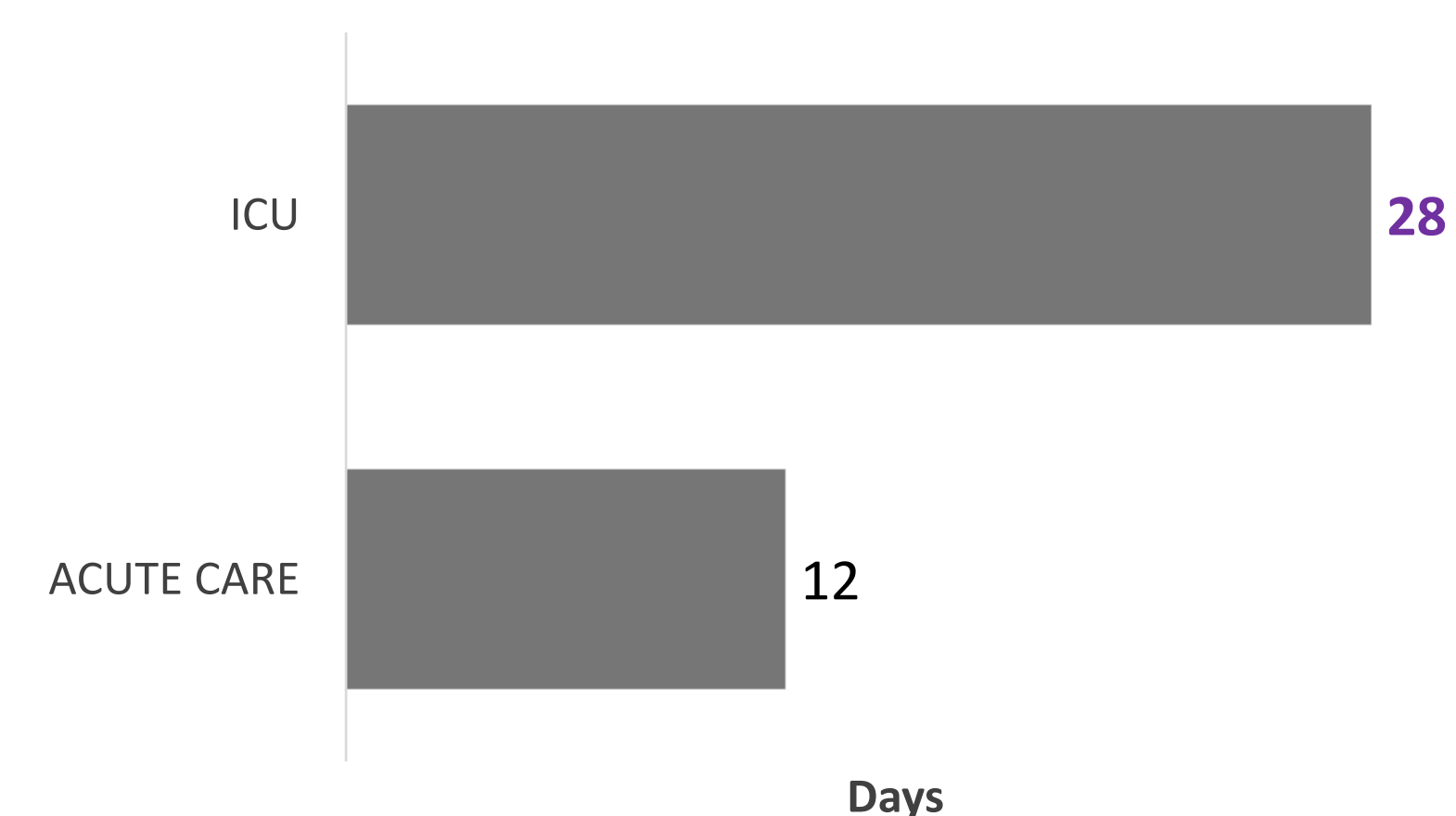
- Calculated Calorie Needs: 2135-2464 kcals daily (BEE* x 1.3-1.5)
- Calculated Protein Needs: 125-165g protein daily (1.5-2.0g/kg/d)

**calculated using Harris Benedict*

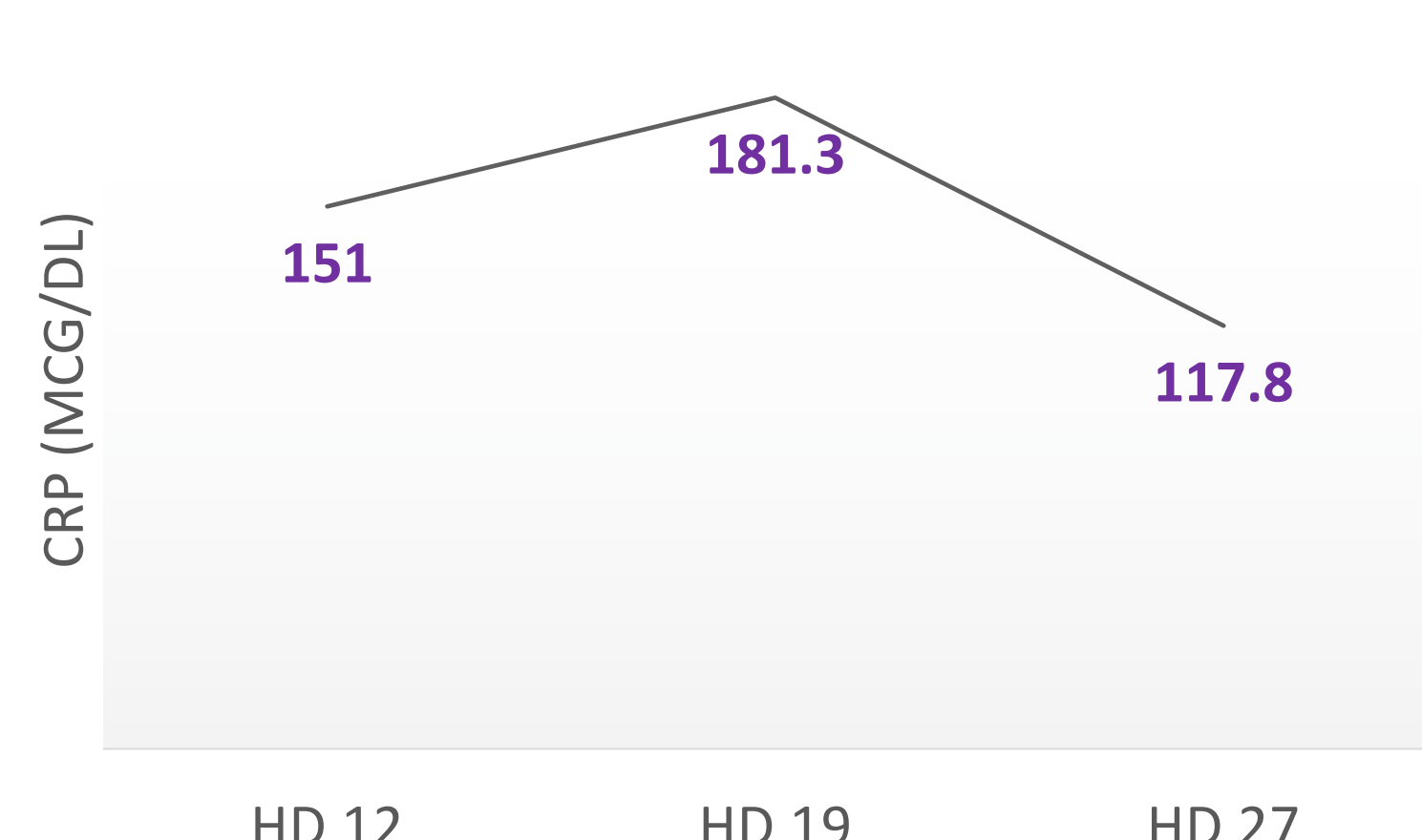
Nutrition Labs:

- Indirect Calorimetry: 2860 kcals daily
- Nitrogen Balance Study: 197-281g protein loss daily (2.6-3.4 g/kg)

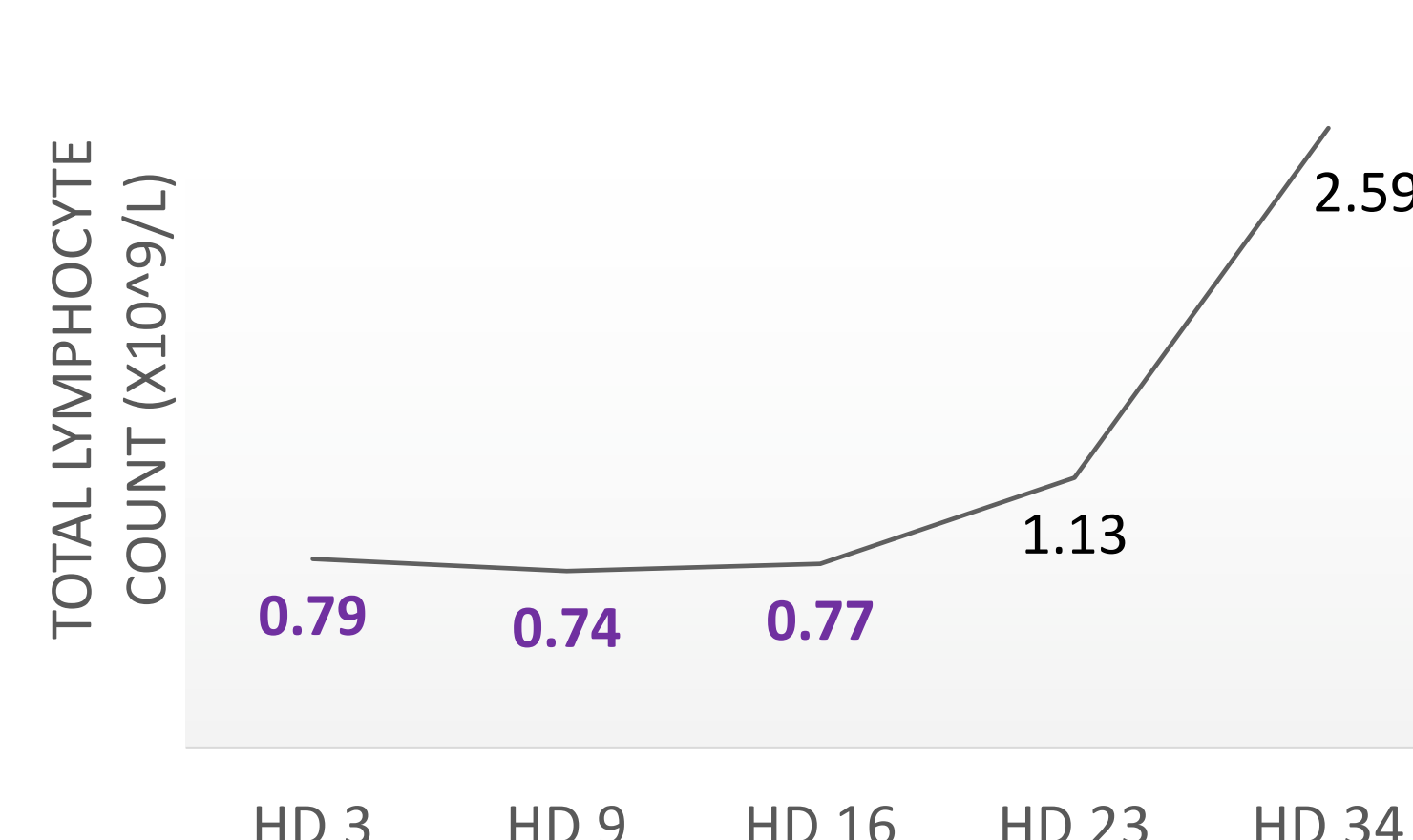
Mr. AZ's Clinical Indications of PICS:



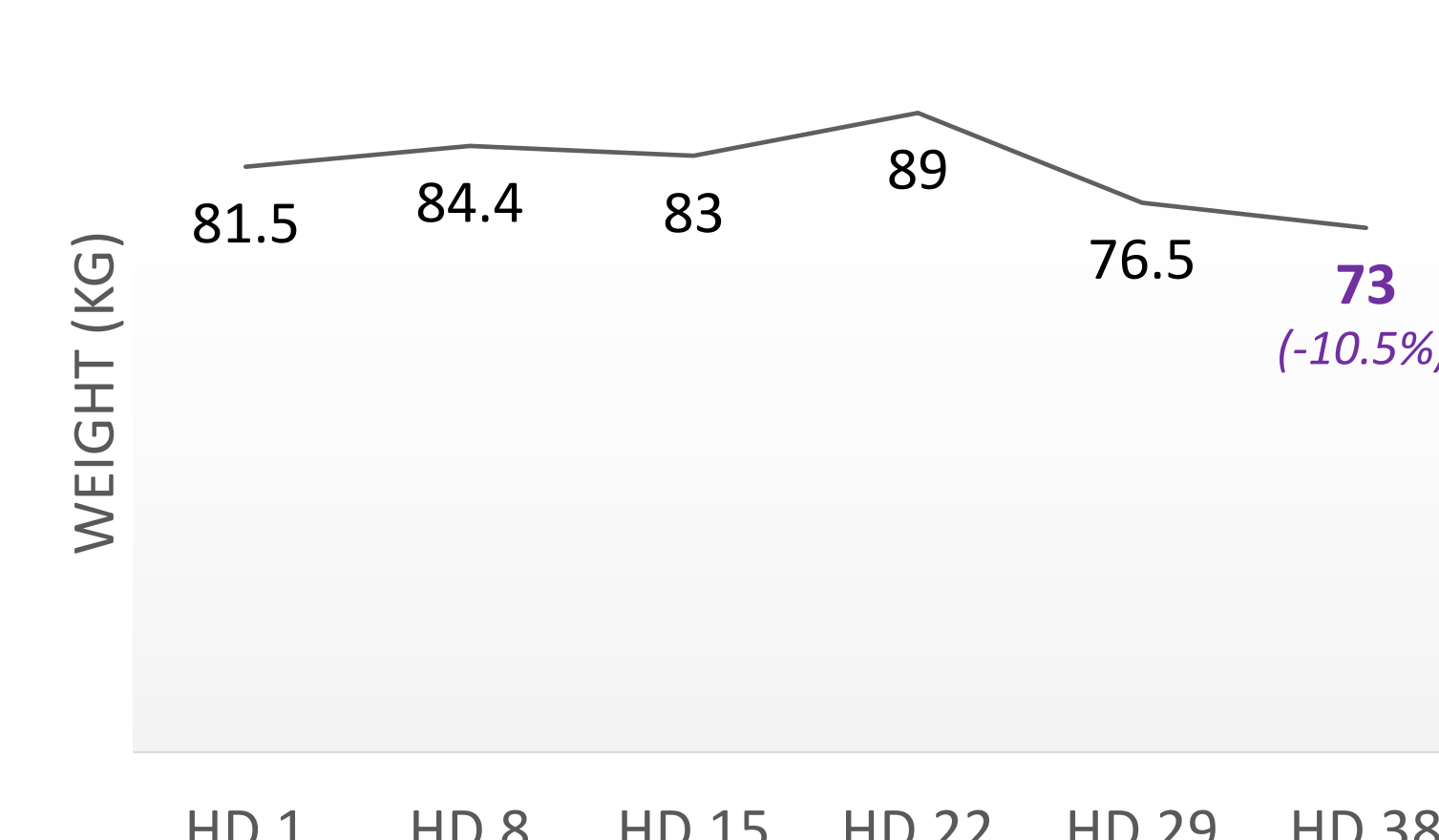
Prolonged Critical Illness
ICU Length of Stay >14d



Persistent Inflammation
CRP >50mcg/dL



Persistent Immunosuppression
Total Lymphocyte Count <0.8x10⁹/L



Prolonged Catabolism
Length of Stay Weight Loss >10%