ICH Improvement/Stabilization at Discharge Rate: Proportion of ICH patients with discharge GCS/NIHSS better

than admission score relative to total ICH patients. **Numerator Rule:** 

Discharge GCS/NIHSS better than admission score.





**Knowledge Enhancement** 



## **Glasgow Coma Scale (GCS)**

Total score ranges from 3 (indicating deep unconsciousness) to 15 (indicating full consciousness)...

**National Institutes of Health Stroke Scale (NIHSS)** 

The NIHSS score ranges from 0 (no stroke symptoms) to 42 (severe stroke)





**Rule Decomposition** 



Logical Rule 1: GCS score comparision: NL:if dis GCS score larger than adm GCS score, then true. SY: if dis GCS score ≥ adm GCS score → True Logical Rule 2: NIHSS score comparision ...





Clinical Fact Templatization 🔎



Fact 1: adm GCS score is Fact 2: adm NIHSS score is Fact 3: dis GCS score is Fact 4: dis NIHSS score is





Templated Clincal Facts: [...] Logical Rules:[NL: ... SY: ...]

score is 13 (Eye-opening response 3, Verbal response 4, Motor response 6). *Discharge*: The patient's general condition is stable ... The GCS score is 15. **Templated Clincal Facts**: [Fact 1: adm GCS score is ; Fact 2: adm NIHSS score is ; Fact 3: dis GCS score is ; Fact 4: dis NIHSS score is ] **Logical Rules**:  $[(dis GCS \ge adm GCS) \lor (dis NIHSS \le adm NIHSS) \rightarrow True]$ 

**Patient Note:** Admission: The patient ... The total GCS (Glasgow Coma Scale)





Llama3.1...

## **Clinical Fact Verification:**

Fact 1: adm GCS score is

- Evidence: The total GCS (Glasgow Coma Scale) score is 13. - Result: adm GCS score is 13. Fact 2: adm NIHSS score is none.

Fact 3: dis GCS score is

- Evidence: The GCS score is 15. - Result: dis GCS score is 15. Fact 4: dis

NIHSS score is none.

**Inferential Rule Reasoning:** 

For Rule 1 (GCS Score Comparison Rule)

NL rule application: we compare Fact 3 (15 points) with Fact 1 (13 points).

Since 15 is larger than 13, Rule 1 is True. SY rule application: Fact  $3 \ge$ Fact1, True.

For Rule 2 (NIHSS Score Comparison Rule)

NL rule application: we cannot evaluate this rule because both Fact 2 and Fact 4 are False (no NIHSS scores provided). SY rule application: not sure, False

**Overall Result:** 

Since Rule 1 is True, we conclude that the patient's GCS score at discharge is equal to or better than at admission.

Answer: True.