TIMI RISK SCORE FOR UNSTABLE ANGINA (UA) AND NSTEMI

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I CORE CONCEPT AND PURPOSE

- **The Goal:** The TIMI (Thrombolysis in Myocardial Infarction) Risk Score is a simple bedside tool used to predict the **14-day risk** of all-cause mortality, new or recurrent MI, or severe recurrent ischemia requiring urgent revascularization.
- **Clinical Utility:** It helps in the "Paradigm Shift" of deciding which patients benefit from an **Early Invasive Strategy** (Catheterization within 24 to 48 hours) versus an initial conservative approach.

II THE TIMI RISK SCORE COMPONENTS

- **Structure:** The score is composed of **7 independent variables**. Each variable is worth **1 point** (Total score range: 0 to 7).
- **Age 65 years or older.**
- **At least 3 risk factors for Coronary Artery Disease (CAD):** (Family history of CAD, hypertension, hypercholesterolemia, diabetes, or current smoking).
- **Prior Coronary Stenosis of 50 percent or more:** (Known from previous angiography).
- **ST-segment deviation of 0.5 mm or more on admission ECG.**
- **At least 2 anginal episodes in the last 24 hours.**
- **Use of Aspirin in the last 7 days.**
- **Elevated serum cardiac biomarkers:** (Troponin or CK-MB).

III RISK CATEGORIZATION AND PROGNOSIS

- **Gradient of Risk:** The 14-day risk of death, MI, or urgent revascularization rises steadily with the score (Antman et al., *JAMA* 2000):

TIMI Score	14-Day Event Rate	Risk Category
0–1	4.7%	Low
2	8.3%	Low
3	13.2%	Intermediate
4	19.9%	Intermediate
5	26.2%	High
6–7	40.9%	High

IV RECOMMENDATIONS FOR MANAGEMENT (ESC 2023 ACS / ACC-AHA 2025 ACS)

- **High Risk (TIMI 5 to 7):**
  - **Recommendation:** Early invasive strategy (within 24 hours), or immediate (within 2 hours) if very-high-risk features are present. These patients derive the greatest absolute benefit from early revascularization.
- **Intermediate Risk (TIMI 3 to 4):**
  - **Recommendation:** Invasive strategy during the index admission. Benefit is significant but less than in the high-risk group.
- **Low Risk (TIMI 0 to 2):**
  - **Recommendation:** Selective invasive approach guided by non-invasive ischemia testing. An invasive strategy may be deferred unless the patient fails medical therapy or shows ischemia on stress tests.

V THE DISTINCTION DATA: LIMITATIONS AND COMPARISONS

- **The “Aspirin” Factor:** Prior Aspirin use is a marker of “higher-risk biology” or plaque that has already “failed” medical therapy, which is why it is an independent risk predictor.
- **TIMI vs. GRACE Score:** While the TIMI score is easier to calculate at the bedside, the **GRACE (Global Registry of Acute Cardiac Events) Score** is considered more accurate for predicting both in-hospital and 6-month mortality.
- **Guideline Position:** The 2023 ESC ACS Guidelines recommend considering the **GRACE score** for prognostic estimation, while TIMI remains a quick bedside triage tool.

VI THE INDIAN CLINICAL CONTEXT

- **The “Early Presenter” Challenge:** Many NSTEMI patients present within the “Golden Hour.” In these cases, even a low TIMI score should not delay an ECG and Troponin assessment.
- **The Diabetic Threshold:** Since a large proportion of Indian NSTEMI patients are diabetic, clinicians commonly use a lower threshold for an invasive strategy, effectively treating most diabetic NSTEMI cases as “Intermediate to High Risk” regardless of the total TIMI score.
- **Troponin Assay Sensitivity:** With the widespread use of **High-Sensitivity Troponin (hs-cTn)**, the “Biomarker” point is triggered more often, shifting more patients into the intermediate-risk category compared to older CK-MB based scoring.