IIHMR UNIVERSITY

INSTITUTE OF HEALTH MANAGEMENT RESEARCH

# Turnaround Time Analysis of Critical Value intimation and timely Intervention

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# Introduction

**Study Title:** Turnaround Time Analysis of Critical Value Intimation and Timely Intervention

**Overview:**

Evaluates how quickly departments report and act on critical lab values. Timely response is essential to reduce patient risk.

**Purpose:**

To analyze the efficiency and responsiveness of clinical departments in acting upon critical laboratory results.

**Why It Matters:**

Critical value reporting is a time-sensitive process that directly impacts patient outcomes. Delays in communication or intervention can lead to life-threatening consequences.

**Scope of the Study:**

This study evaluates both the intimation (information) and the actual clinical intervention TATs across multiple hospital departments based on 486 critical cases.

# Objectives & Rationale

**Objective:**

To monitor the Turnaround Time (TAT) for both Information and Intervention of critical values across various departments.

**Rationale:**

Timely communication and intervention in response to critical values are vital in reducing patient morbidity and mortality.

Delays in TAT may lead to missed or delayed clinical actions.

Identifying department-wise performance can help streamline communication and protocols.

# When to Use & When to Serve

**When to Use (Reporting Critical Values):**

- As soon as laboratory results meet critical value based on hospital SOPs or NABL/CLSI guidelines.
- Immediate reporting is necessary regardless of time (24x7 applicability).

**When to Serve (Taking Action):**

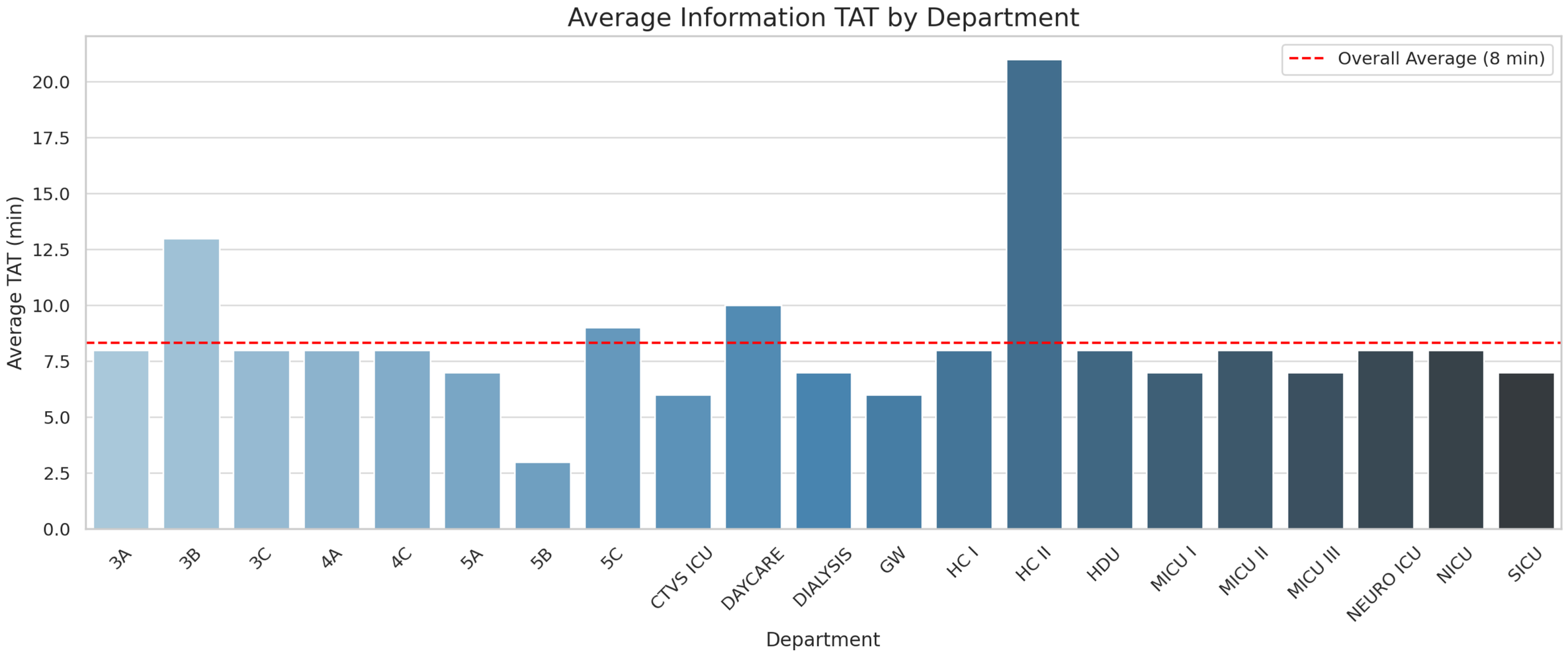
- Clinicians or nurses must acknowledge the critical value and initiate intervention within the standard time limits.
- Benchmark: TAT for communication ideally <15 minutes; TAT for intervention ideally <30 minutes as per hospital policy.

# Exclusion Criteria

- Parameters not classified as critical by NABL/CLSI standards.
- OPD (Outpatient Department) cases with no immediate follow-up.
- Unverified or incomplete data entries.
- POCT

# Graphical Analysis & Key Insights

# Analysis of the Average Turnaround Time (TAT) for Intimation by Department



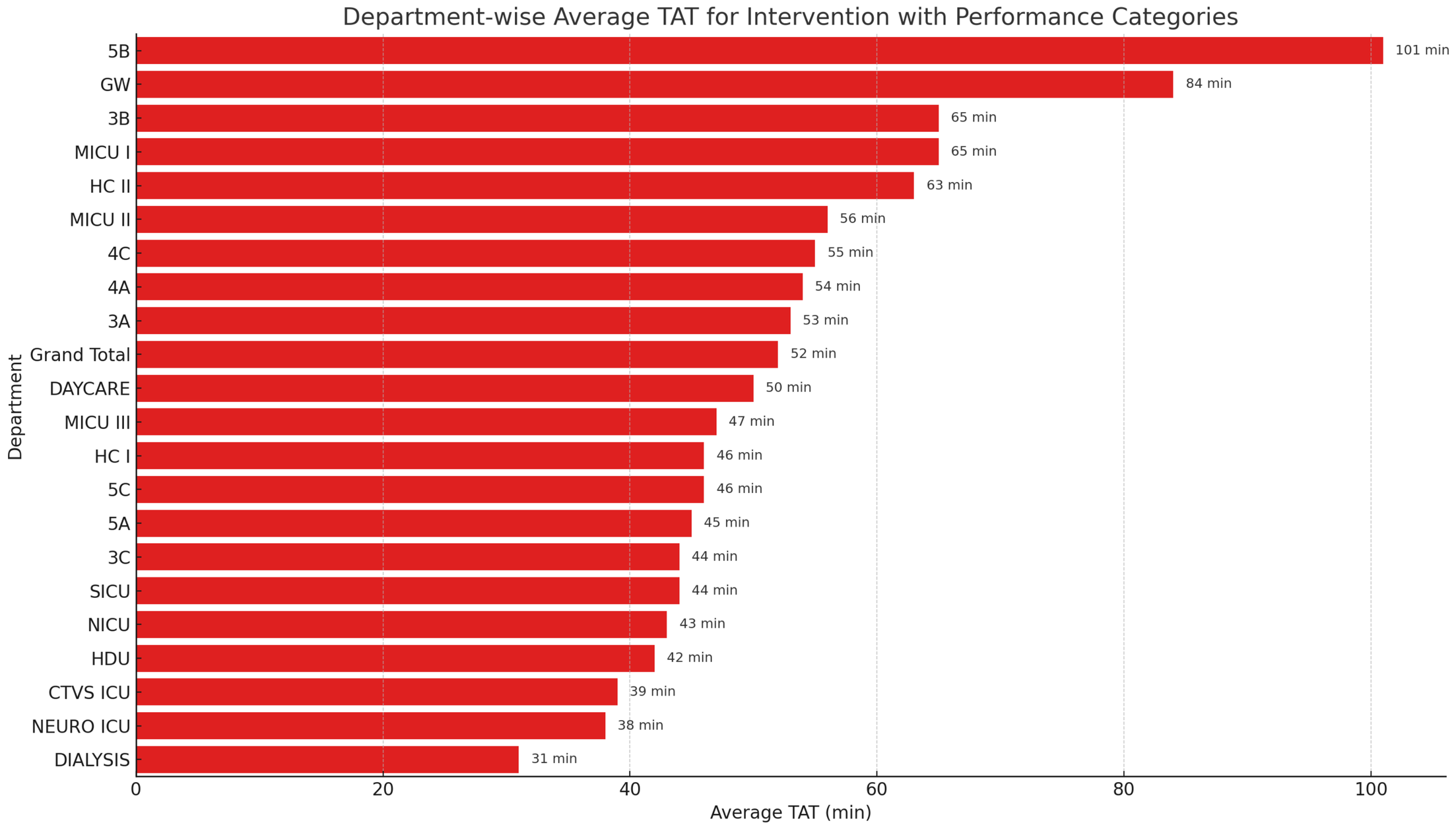
📊 Key Chart Insights:

- **Overall Average TAT:** 8 minutes (indicated by the red dashed line).
- **Departments Above Average TAT:**
  - **HC II:** 21 minutes —highest delay
- **Departments Below or At Average TAT:**
  - Most ICUs and General Wards, e.g., CTVS ICU, GW, MICU I/II/III, SICU, NICU – generally 6–8 minutes
  - 5B is the fastest with just 3 minutes

🔍 **Notable Observations:**

- HC II is a clear outlier with significantly high TAT (21 minutes), suggesting either process inefficiencies.
- ICU departments are performing close to or better than average, which is positive given the critical nature of care.

# Analysis of the Average Turnaround Time (TAT) for Intervention by Department



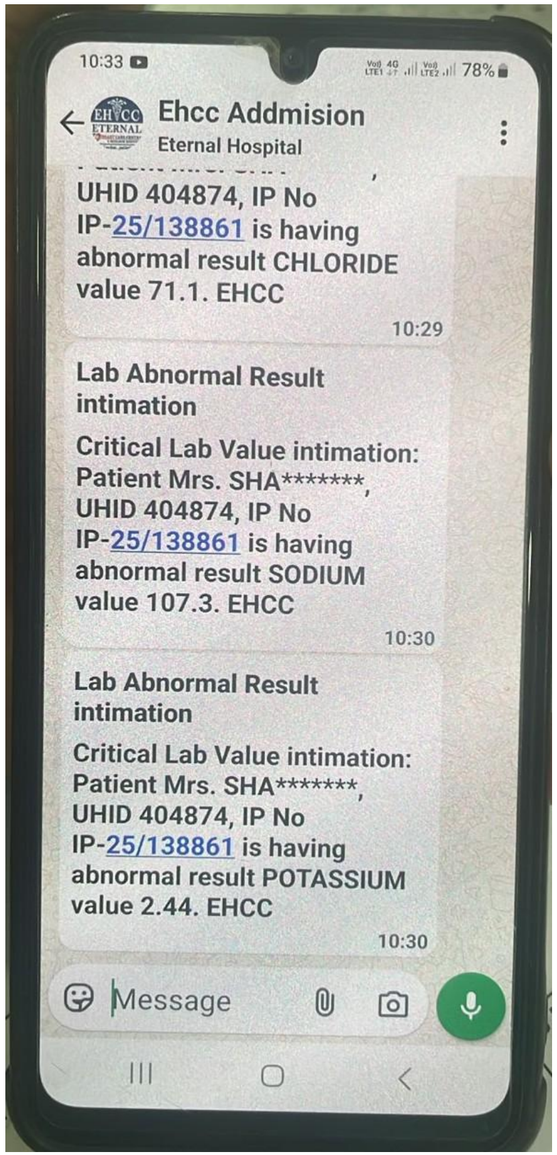
## 🔍 Summary Insights:

- **Best Performing (Lowest TAT):**
  - **DIALYSIS:** 31 mins
  - **NEURO ICU:** 38 mins
  - **CTVS ICU:** 39 mins
- **Areas Needing Most Improvement (Highest TAT):**
  - **5B:** 101 mins
  - **GW:** 84 mins
  - **3B / MICU I:** 65 mins

## 📊 Trend Observations:

- ICUs overall (like NEURO, CTVS, NICU, MICU III) perform better than General Wards or 5B.
- The Grand Total Average TAT is 52 mins, which means many departments are performing above this benchmark.

# Problems Identified




- **Automated Intimation to Physicians**: Doctors receive critical value alerts through automated messages on their phones; however, this process lacks integration with proper documentation protocols.
- **Inadequate Documentation by Nursing Staff:** The nursing staff often fail to accurately maintain manual registers, leading to delays in initiating timely clinical interventions.
- **Need for HIS Optimization:** To enhance response time and reduce dependency on paper-based records, it is essential to streamline and digitize the critical value communication and documentation process within the Hospital Information System (HIS).

# Recommendations

- Use automated alerting tools integrated with lab and HIS systems to instantly notify clinicians of critical values.
- Track both TAT for information and TAT for intervention on a daily or weekly basis.
- Conduct frequent workshops focused on critical value protocols and time sensitivity.

**Information TAT Summary (Sample Size: 486)**

- **Efficient Departments:** 5B, DIALYSIS, GW, CTVS ICU and others maintained Information TATs below 15 minutes.
- **Department Improvement:** HC II showed high Information TATs, indicating communication delays.
- **Overall Observation:** Wide departmental variation suggests inconsistent communication protocols requiring standardization.

**Intervention TAT Summary (Sample Size: 486)**

- **High Average TAT:** The overall average is 52 minutes, far above the ideal 30-minute target.
- **Systemic Delays:** All departments are underperforming, with some exceeding 100 minutes, showing widespread inefficiencies.
- **Urgent Action Needed:** A thorough review of workflows and resource use is essential to improve response times.

# Thank You