

Elevating the Response Rate of Critical Value Notifications within 30 Minutes

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INTRODUCTION

The significance of timely response to critical laboratory values is paramount for patient safety. It serves not only as a continuous monitoring indicator for hospital evaluations but also as a crucial objective in promoting healthcare quality and patient safety. When laboratory results indicate critical values, notifications are promptly dispatched to physicians or nursing supervisors. The notification method involves automatic sending of text messages and simultaneous transmission to the medical information system. Recipients are required to respond within 30 minutes either through text messages or the medical information system. The actual performance value for March 2023 was 59%, with the target value set at 70% compliance.

AIM

After the testing unit issues a correct report, if there is an abnormal test result that threatens the patient's life (referred to as "critical value"), the doctor needs to be notified immediately so that the doctor can provide correct treatment during the treatment process. Adhering to the mission of obtaining golden treatment time for patients, we allow doctors to effectively grasp the status of the disease, ensure the effectiveness of medical treatment and improve the quality of medical care.

METHOD

Utilizing the PDCA (plan-do-check-act) management cycle model to improve processes and enhance quality.

Analysis of reasons for not meeting the target:

- Departments with higher reception rates of critical value text messages (top 80%) have lower response rates (Internal Medicine: 43.7%, Emergency Room: 73.4%).
- During nighttime hours, recipients of text messages are asleep, resulting in a response rate of only 36%.
- Text message recipients are unfamiliar with the operational steps for responding to critical values.
- Insufficient awareness of the connection between critical value processing and patient safety.

Action plan:

- Apply for official mobile devices dedicated to receiving text messages, with priority given to the Emergency Room (ER) and Intensive Care Unit (ICU).
- Conduct Intra announcements during nighttime and holidays to promote the implementation of a physician handover system.
- Present at attending physician meetings to educate on text message response methods and establish tracking metrics (list of physicians whose response rate within 30 minutes of each department and personal response rate reached more than 70%).

RESULTS

- Official mobile devices for receiving and responding to critical value text messages were implemented in the Emergency Room (starting October 2022) and the Intensive Care Unit (starting February 2023).
- In March 2023, Announcement and promotion to encourage physicians to implement shift handovers. The critical value response rate increased from 59% (March 2023) to 64.7% (April 2023).
- In May 2023, promotion of text message response methods and tracking metrics during the attending physicians' meeting. The critical value response rate increased from 63.35% (May 2023) to 67.61% (June 2023).
- Starting June 2023, the service expanded to include departments with the top 80% of critical value occurrence.
- On August 14, 2023, a " Education Manual " was made available for download in the external network under the Laboratory Medicine Department.
- From March to November 2023, the critical value response rate showed monthly improvement, reaching 74.5% in November 2023, surpassing the target of 70%.
- Improvement Rate: $(74.5-5959)\times100\%=26.3\%(5974.5-59)\times100\%=26.3\%$.
- Goal Achievement Rate: $(74.5-5970-59)\times100\%=141\%(70-5974.5-59)\times100\%=141\%$.



Figure1 Outpatient inspection automated workflow

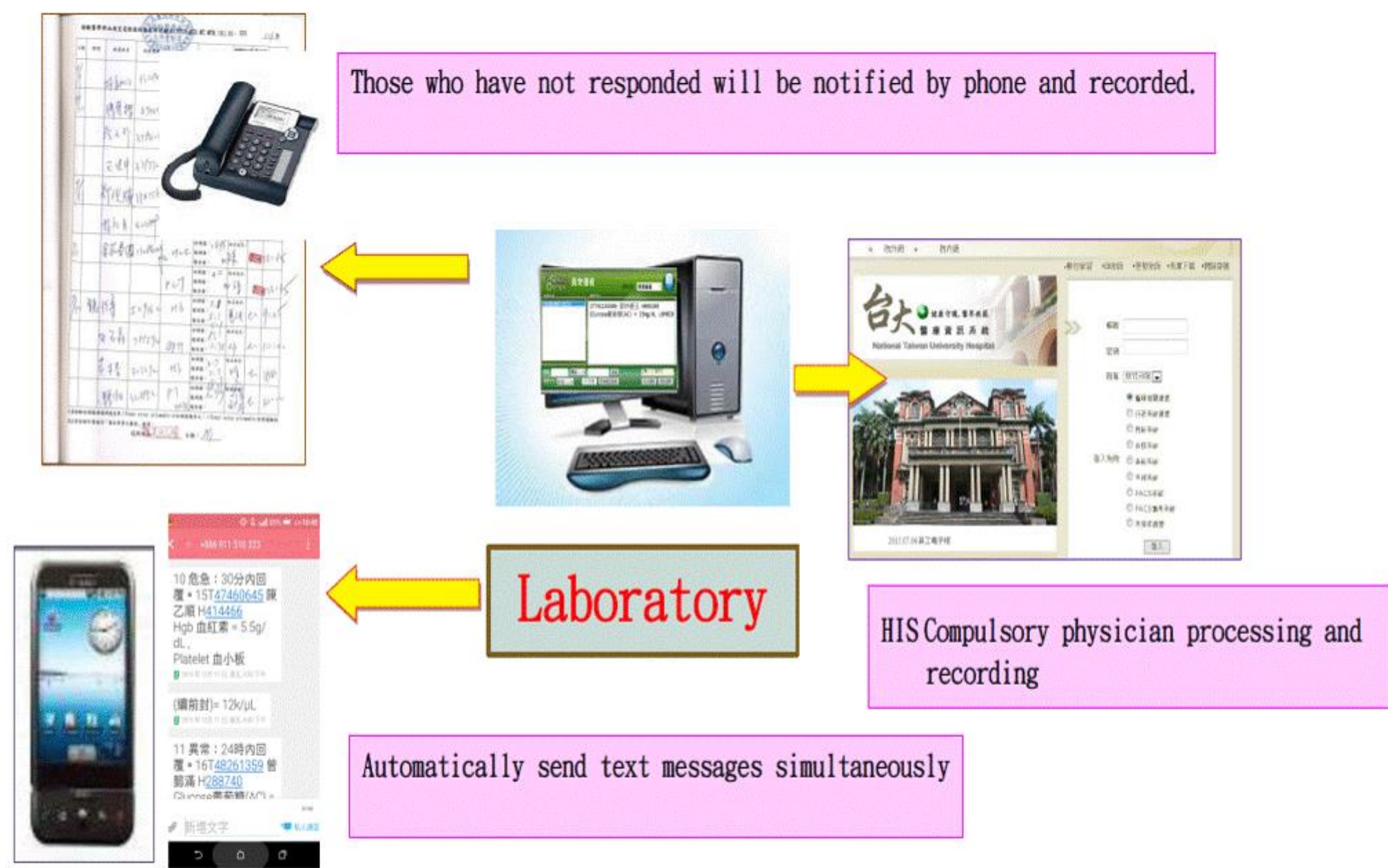


Figure2 Critical value notification operation

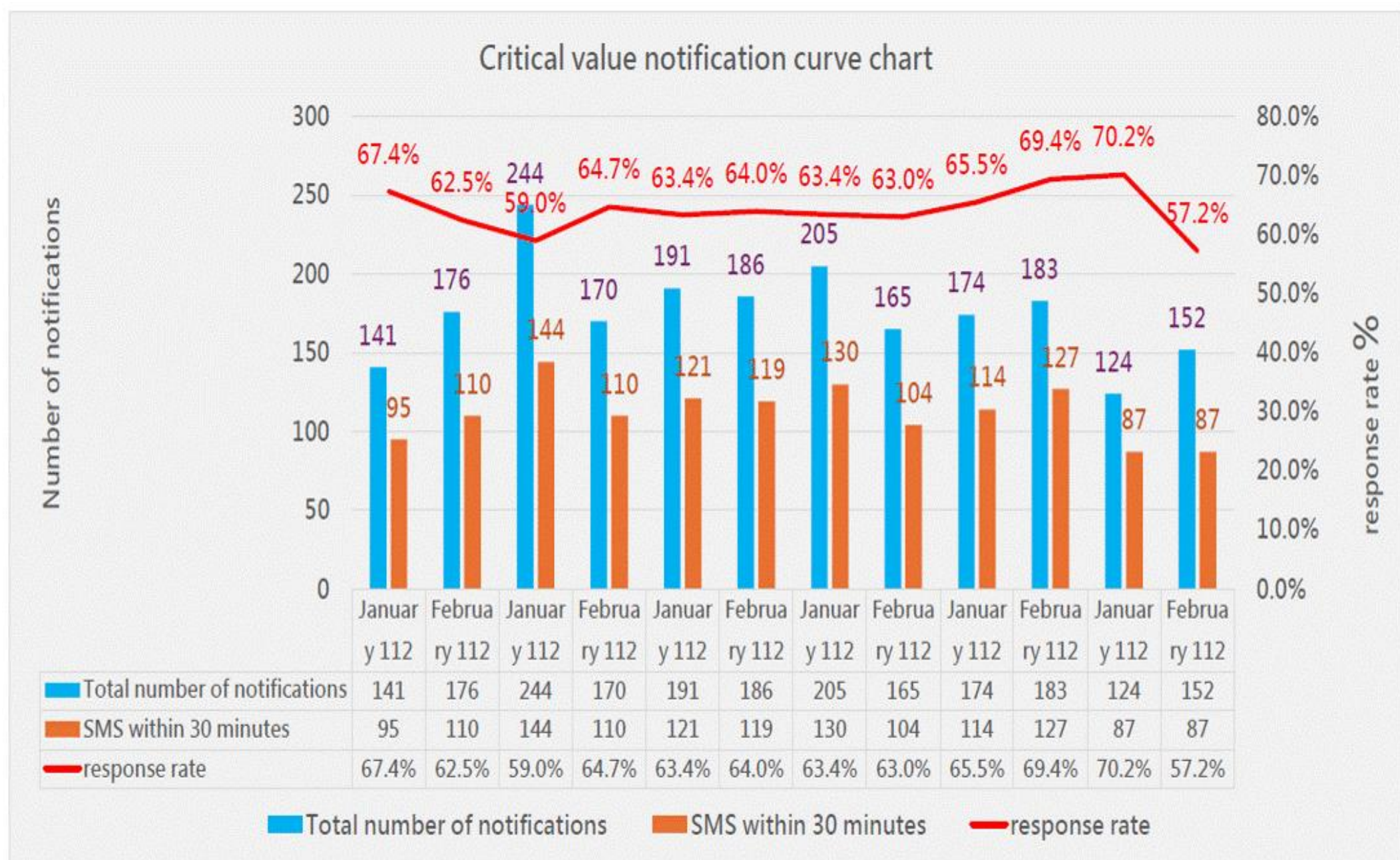


Figure3 Critical value notification curve chart

CONCLUSIONS

Establishing Standardized Processes and Continuous Improvement:

- Critical value notification for official mobile units (Emergency Room, Intensive Care Unit): Incorporate the critical value notification method into standardized procedures.
- Physician handover to be included in standardized procedures.
- Provide monthly feedback on critical value data to each medical department, incorporating it into standardized procedures.
- Implement the second cycle of **PDCA** (Plan-Do-Check-Act) : Commend outstanding performers in critical value response rates (those with higher response rates), gradually reinforcing the cultural awareness of patient safety in critical value handling.

Patient safety relies on teamwork and effective communication. There is still room for improvement in the 30-minute response rate for critical values. Continuous review and improvement are necessary to strengthen the healthcare team's commitment to enhancing patient safety and medical quality.

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