

Reducing outpatient waiting time by physician-personalized appointment setting

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INTRODUCTION

For a long time, patients have been complaining about waiting times, and we found that long waiting times are a major cause of patient dissatisfaction in outpatient clinics. Therefore, it has become an important issue for hospital improvement.

AIM

This study aimed to reduce outpatient waiting time (WT) in a tertiary care center using a physician-personalized appointment system.

METHOD

A multidisciplinary quality improvement team consisting of physicians, nurses, and representatives of Division of Medical Affairs, Department of Information Technology, and Department of Medical Quality was established. The outpatient time data of four physicians in E-Da hospital were retrospectively collected by hospital management software. According to the process of Quality Control Story, the team used process flow diagrams and fishbone analysis to identify various causes of the long WT.

We then analyzed the root causes and intervention ideas which were tested using Plan-Do-Check-Act (PDCA) cycles. Three major causes for long WT were inconsistencies between appointment and consultation time intervals, inappropriate settings for appointment registrations and on-site registrations, and discrepancy between examination times and outpatient appointment times on the same day. Between October 11, 2021 and December 10, 2021 (baseline period), baseline data including consultation time of the four physicians, patient WT, and percentage of waiting > 30 minutes in 1434 patients were retrospectively collected.

The appointment time interval and setting for appointment and on-site registration were adjusted by each physician according to actual consultation times and physicians' experiences. In addition, a new system for integration of examination time and outpatient appointment time has been established, and physicians can arrange appropriate appointment time for patients undergoing examination on the day of outpatient clinic. After the interventions, data of 1064 patients were collected between September 19, 2022 and November 3, 2022 (intervention period).

RESULTS

Appointment time intervals and reservation rules were revised in 4 (100%) and 2 (50%) physicians, respectively. All four physicians adopted the new system for integration of examination time and outpatient appointment time. There was no significant change in outpatient volume of each physician after intervention. The mean WT decreased from 32.4 ± 32.7 minutes in baseline period to 20.6 ± 18.5 minutes in intervention period ($p < 0.001$). The percentage of waiting >30 minutes decreased from 39.2% in baseline period to 24.2% in intervention period ($p < 0.001$)(Figure 1).

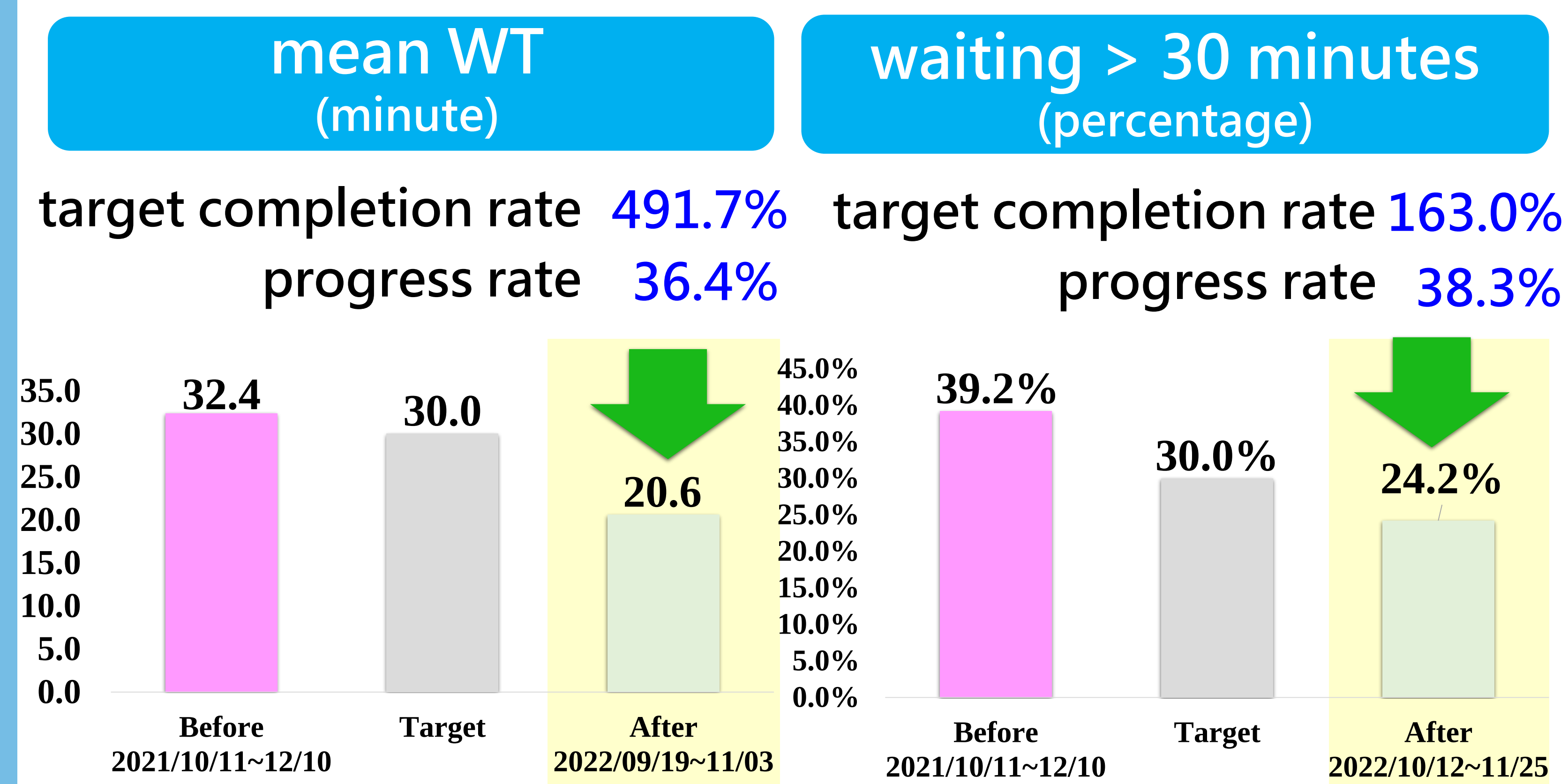


Figure 1. Comparison chart before and after improvement

CONCLUSIONS

Using structured quality improvement methodology, we can identify the crucial causes of long WT and derive interventions. Outpatient WT and the percentage of waiting >30 minutes are significantly reduced after using the physician-personalized appointment system.

In the future, intervention measures will be promoted in parallel with other departments, in order to enhance the patient's medical experience and quality.

REFERENCES

- Sun J, Lin Q, Zhao P, Zhang Q, Xu K, Chen H, Hu C J, Stuntz M, Li H, Liu Y. Reducing waiting time and raising outpatient satisfaction in a chinese public tertiary general hospital-an interrupted time series study. BMC Public Health 2017; 17(1):668.
- Harper, PR and Gamlin HM. Reduced outpatient waiting times with improved appointment scheduling: a simulation modelling approach. OR spectrum 2003; 25:207-222.