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Introduction

A medical center with 1,139 beds uses manpower to deliver medicines to inpatients. However, due to the increase in inpatients and the shortage of manpower for delivery, the waiting time for inpatients' prescriptions is gradually lengthening. As a result, the number of applications for emergency medicines has also increased significantly. In terms of total prescriptions, 2018 has increased by 7.11% compared to 2017. The number of emergency medicines has increased by 8.26%. It is planned to set up Automated Dispensing Cabinet (ADC) to solve the medication of inpatients question. The 80/20 rule was adopted. Two wards whose prescription volume accounted for 19.70% of the hospital were selected for trial.

Methods

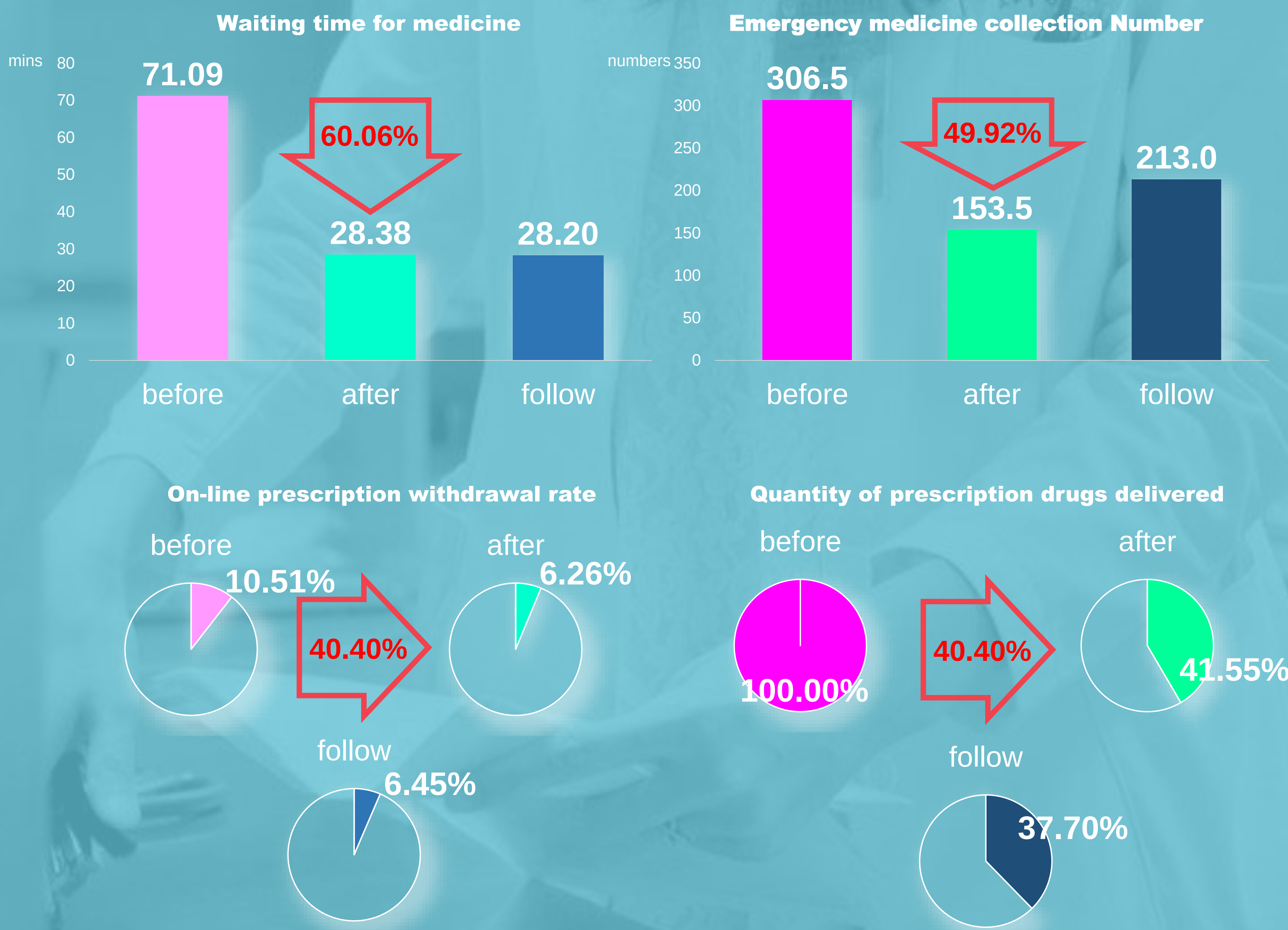
Refer to the guidelines of ISMP and ASHP on ADC. To plan the entire process of providing prescription drugs by ADC. Synchronize and improve related system functions. In addition, in order to strengthen the utilization rate of ADC and the security of monitoring process, design the following methods: (1) A hospital-wide integrated control dashboard system: using the traffic light display function, it can accurately grasp the status of each ADC drug in and out. (2) Automatic navigation function: when the inventory of ADC is lower than the amount prescribed by the doctor, it will automatically Switch to a pharmacist dispensing system. (3) Patented smart computing program. It can accurately present the risk status of each ADC. (4) Innovatively designed AI image recognition at the last stage of ADC taking medicine. Assist in strengthening the control and accuracy of taking medicine. In 2018/ 12 ~ 2019/05 is before improvement. 2020/12 ~ 2021/05 is after improvement. And continue to track 2022/01 ~ 2022/06 to evaluate its improvement effect

Enhancing The New Process of Intelligent Drug Delivery to Ensure The Safety And Timeliness of Medication for Inpatients

Results

Evaluation is based on the following data: (a) Waiting time for medicine: average 71.09 minutes before improvement. After improvement, it was 28.38 minutes. The improvement rate reached 60.06%. Follow-up 2022/01~2022/06 was 28.20 minutes. (b) Emergency medicine collection Number: Before improvement, the average monthly rate was 306.50. After improvement, it was 153.50. The improvement rate reached 49.92%. During the follow-up period, the average was 213.00. (c) On-line prescription withdrawal rate: 10.51% before improvement and 6.26% after improvement. The improvement rate reached 40.40%. The average during the follow-up period was 6.45%. (d) Transmission business volume: 100% were manually transmitted before improvement. 41.55% after improvement. The improvement rate reached 58.45%. During the tracking period, it decreased to 37.70%. (e) The AI drug identification enhanced comparison module can reach 99.95% accuracy.

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Conclusions

According to data research and analysis, setting up ADC can indeed reduce the waiting time for medicines, thereby reducing the number of times the unit applies for emergency medicines due to clinical needs, and can reduce the workload and operation waste of clinical personnel, especially through the overall control of the intelligent system. Safety, adjusting the ratio of ADC drug administration and manual delivery of drugs has a significant benefit, it does improve clinical problems, and greatly improves the quality of patient clinical care and unit management.

Keywords

Automated Dispensing Cabinet , ADC , Drug Delivery Process , waiting time for medication , Dashboard

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