



THE ACCURACY OF PRESSURIZED METERED DOSE INHALERS IN PATIENTS WITH PULMONARY DISEASE: AN IMPROVEMENT PROJECT IN TAIWAN



Hui-Tzu Lin*¹, Jui-Yuan Su¹, Hsin-Chun Wang¹, Yu-Shang Chen¹, Han-Ying Tsai¹, Chen-Chun Liu¹, Ching-Hui Wang¹
¹Nursing Department, Veterans General Hospital, Taipei, Taiwan

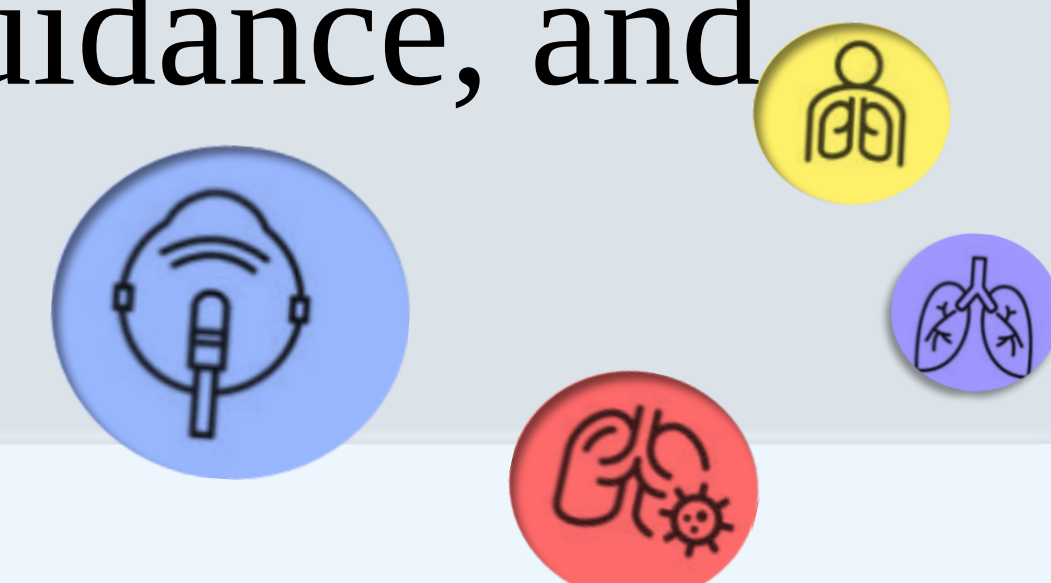


ISQUA2023-ABS-2346

ISQua's 39th International Conference
27th- 30th August | COEX Seoul

Introduction

The inhaled route to administrate medicine as pressurized metered-dose inhalers (pMDI) is considered to be the best route for safety and efficacy. The inhaled device operation error is about 50%. The cause of lack of accuracy which may affect the efficacy of drug therapy causing complications is difficulty remembering the operation steps, complex operation skills, lack of awareness of nurses on the operation of pMDI, lack of implementation of drug guidance, and patients not receiving training.



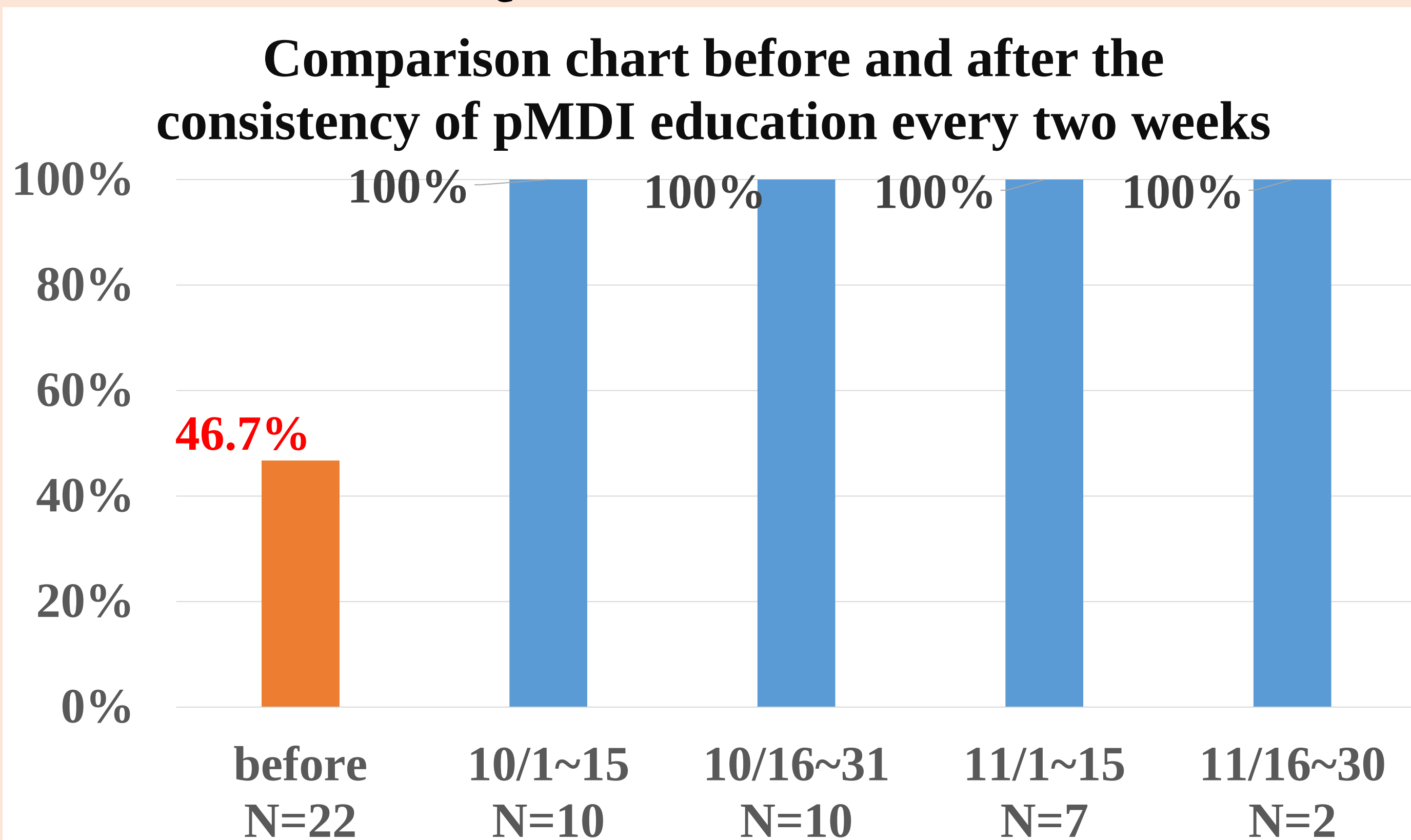
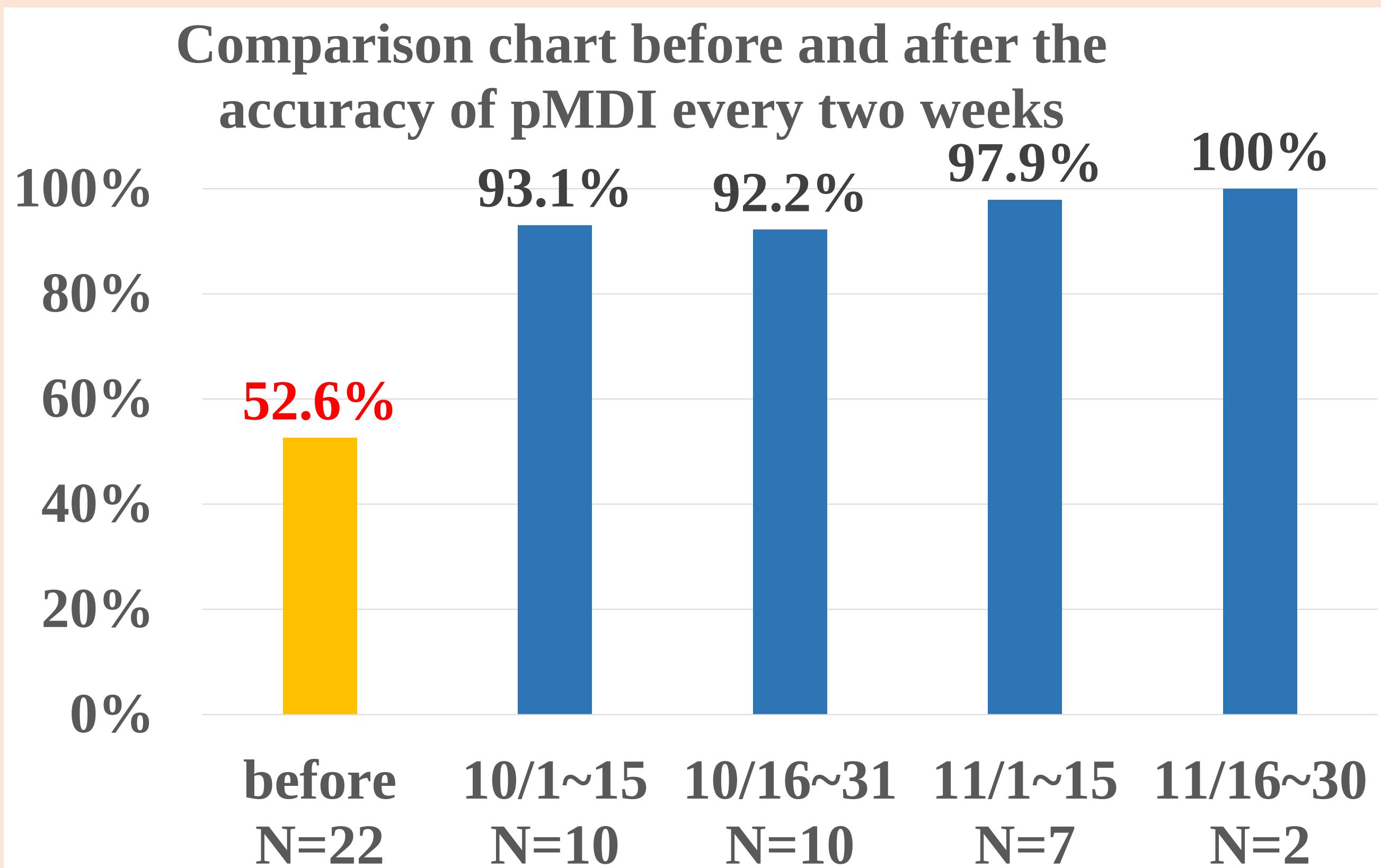
Methods

To improve drug safety and self-care efficiency, multi-professional members formed a task force. The checklist for the Correctness of pMDI Operation for patients was developed. In February 2022, the patients using pMDI in the Chest Medical ward were checked correctly for operating procedures. After analyzing the causes for the low accuracy of pMDI operation, we formulated and implemented improving strategies from March to May. Then, the PDCA model was conducted to confirm the effect of each goal of establishing standard operating procedures.

Results

There were two true causes including lack of "practice of operation skills" and "lack of auditing system for the consistency of nursing guidance". The strategies which were discussed by brainstorming were:

1. Using revised pMDI device education process and nurse self-checklist
2. Creating the mnemonic phrase for easily memorized
3. Making operation step charts
4. Innovate pMDI operation practice props "Jin-xi-li" (homophonic as "Nice inhalation skill" in Chinese);
5. Making pMDI device education video upload – build QR CODE.



Conclusion

The implementation of various countermeasures in this period of activities has achieved good results, so it has been included in the standard work as a basis for clinical care. The performance of the circle members in this period of activities is that they can make good use of clinical resources, innovate countermeasures and practice tools, but if the response to the verification of the true cause and the suspension of activities due to the epidemic is insufficient, they can strengthen their study and training in the future.

References

- Cho-Reyes, S., Celli, B. R., Dembek, C., Yeh, K., & Navaie, M. (2019). Inhalation Technique Errors with Metered-Dose Inhalers Among Patients with Obstructive Lung Diseases: A Systematic Review and Meta-Analysis of U.S. Studies. *Chronic obstructive pulmonary diseases (Miami, Fla.)*, 6(3), 267–280. <https://doi.org/10.15326/jcopdf.6.3.2018.0168>
- Chrystyn, H., van der Palen, J., Sharma, R., Barnes, N., Delafont, B., Mahajan, A., & Thomas, M. (2017). Device errors in asthma and COPD: systematic literature review and meta-analysis. *Primary care respiratory journal : journal of the General Practice Airways Group*, 27(1), 1-10.
- Thomas, R. M., Locke, E. R., Woo, D. M., Nguyen, E. H., Press, V. G., Layouni, T. A., ... & Fan, V. S. (2017). Inhaler training delivered by internet-based home videoconferencing improves technique and quality of life. *Respiratory care*, 62(11), 1412-1422.