

Enhancing Management Efficiency Through Power BI Dashboards : A Pilot Project on Improving Pressure Injury Care Quality

Hsiu-Chen Yeh* ^{1, 2}, Ya-Chun Cheng¹, Ya-Ting Sung¹, Hui-Chun Chung,^{1, 2} Yen Jen Lee ¹
1.Nursing Department, Hualien Tzu Chi Hospital , 2.Tzu Chi University, Hualien , Taiwan

Poster number:

P589

Final ID:

ISQUA 2024-
ABS-3005

INTRODUCTION

Skin pressure injury (PI) is one of the important indicators of nursing care quality. The occurrence of PI not only poses a threat to patients' health and reduces care satisfaction, but also prolongs hospitalization and increases medical costs. It is included in Taiwan's Clinical Performance Indicators (TCPI), mandating hospitals to monitor and report regularly. Comparative analysis of data from various medical institutions stimulates internal improvements for continuous quality enhancement.

The hospital collects PI data reported by units monthly for analysis by the Nursing Quality Management Committee, producing reports for improvement decisions. However, **this quality management monitoring method is time-consuming, lacks reminder mechanisms, and cannot achieve immediate improvement.** Power BI, as a management trend, can transform data into instant impact, enhancing organizational efficiency.

Ineffective management of PI notification process

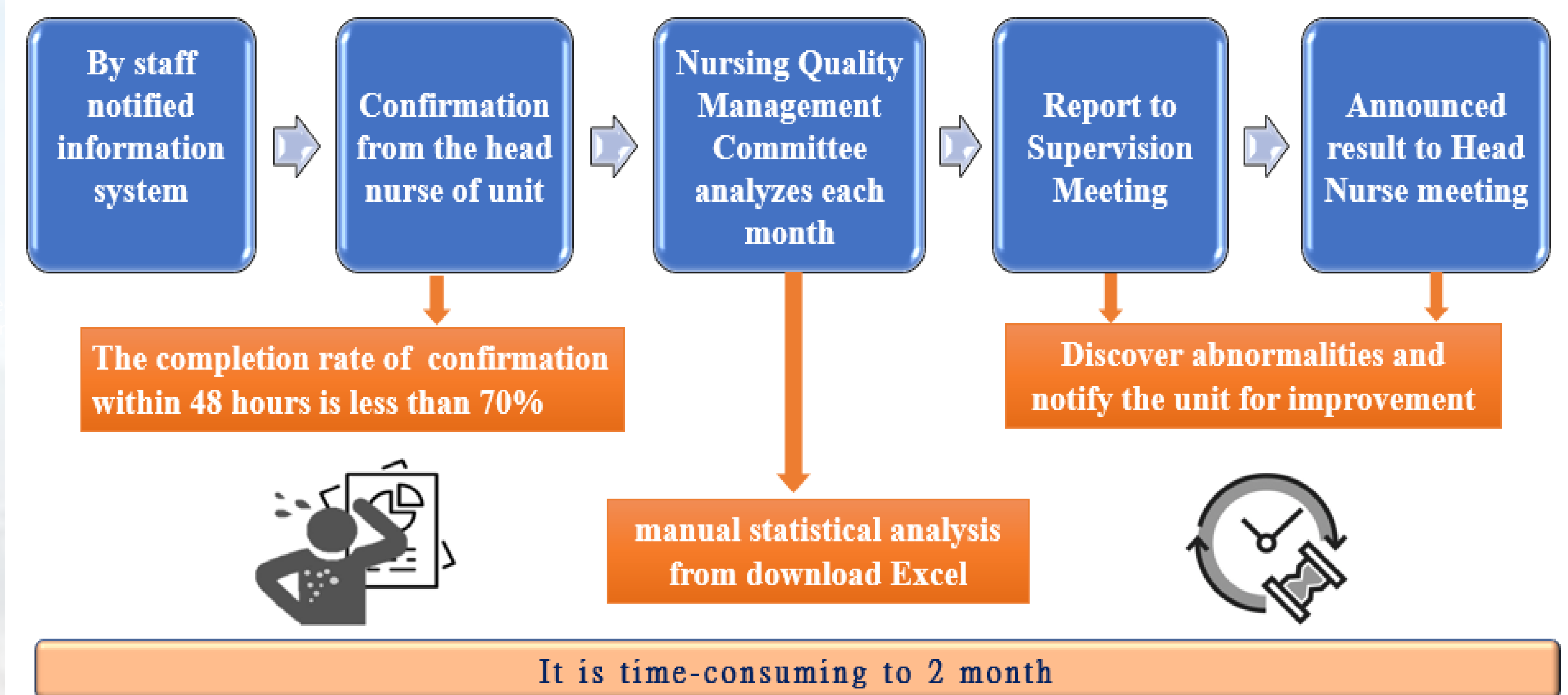


Figure 1

AIM

The aim of this project is to improve the efficiency of monitoring and managing PI in hospitalized patients and improving the quality of care.

METHOD

Phase 1 : Construction and Optimization of "PI Map BI System" (2022/01~2023/2)

1. Nursing department collaborates with information technology and AI center.
2. Link nursing wound care data and PI reporting system to merge into one data model.
3. Establish BI data definitions and calculation formulas to produce real-time data.
4. Design BI features and intent : Pay attention 、visualization



Figure 2

Hospital floor distribution maps : Ward unit area is easy to identify and different colors represent levels of incidence

visualization of occurrence trends

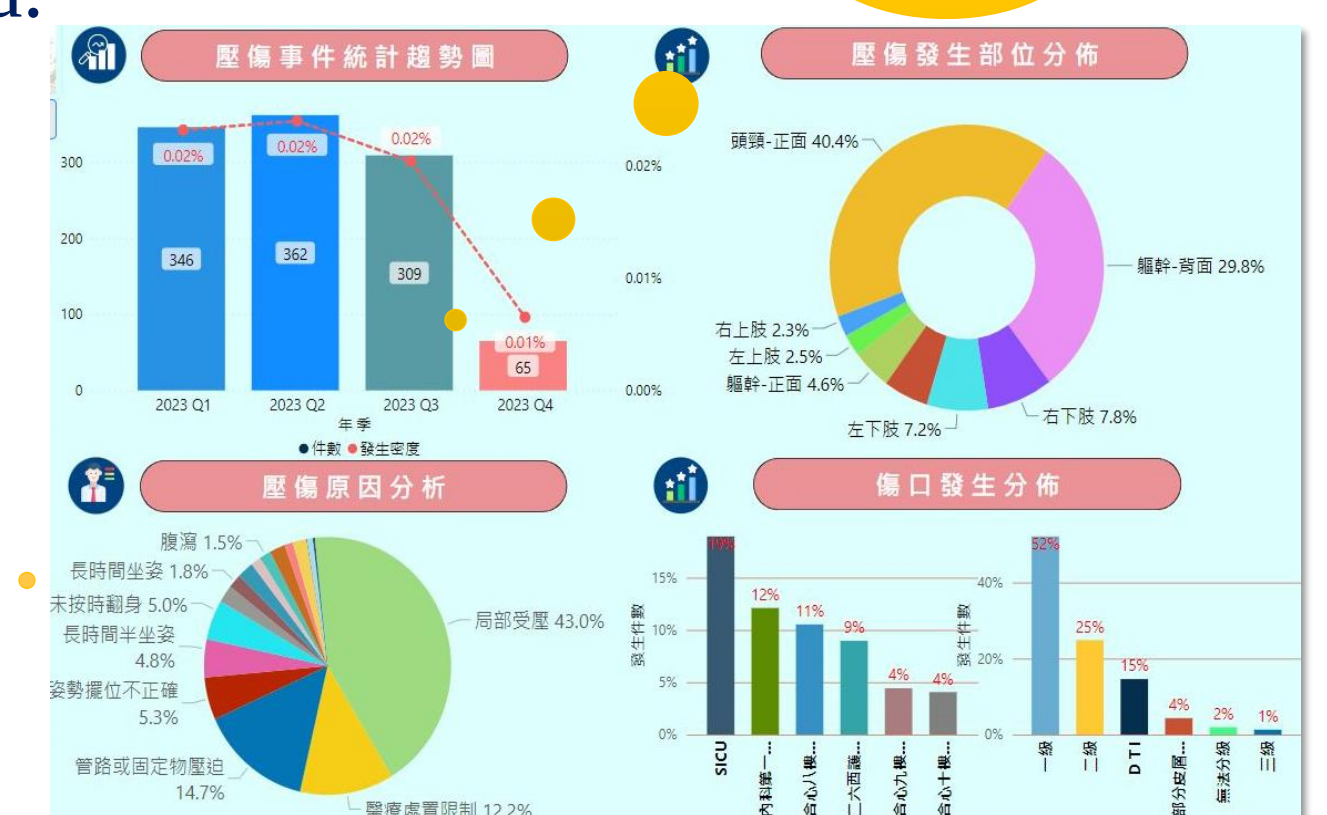


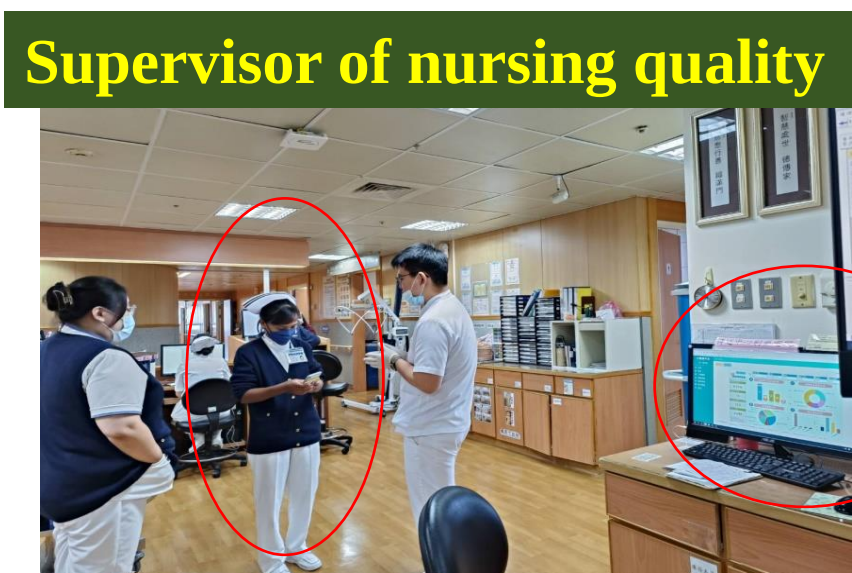
Figure 3

Phase 2 : Clinical Improvement (2023/2~2023/12)

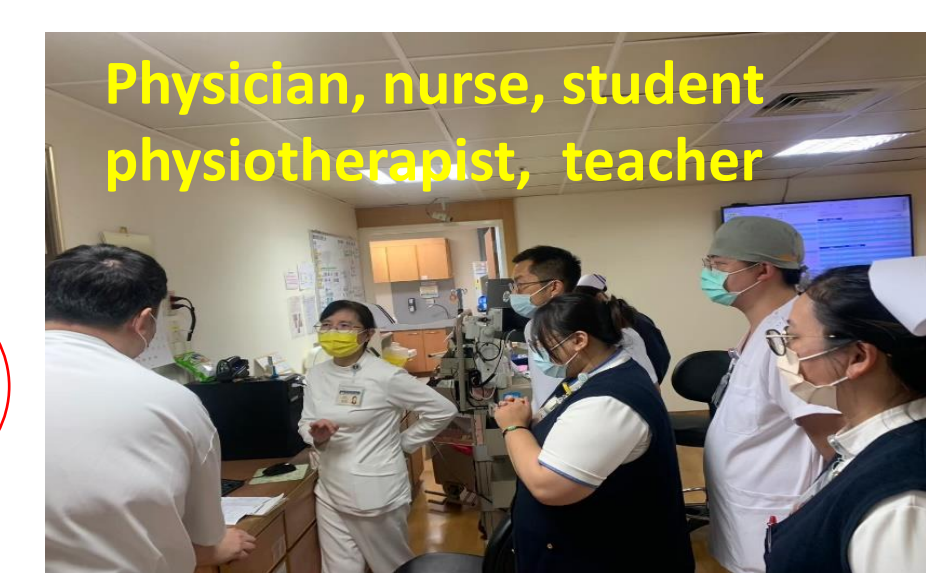
1. Supervisors in the nursing department regularly report using "PI Map Power BI" **every Monday to detect abnormal alerts early**, formulate improvement strategies, **and provide real-time feedback** on unit performance.
2. **Ward rounds management** : Supervise the implementation of BI in nursing stations, conduct internal analysis and discussions on PI conditions, and visualize big data to engage the entire nursing team in addressing PI issues.
3. **Promptly identify abnormalities ,intervene and initiate inspections** : Check "The correct execution rate of medical device pressure injury prevention care behaviors" was total 108 cases, with a correctness rate of 96.2%.
4. Monthly nursing administration meetings address units with high PI occurrences in 2022, facilitating PI PDCA improvement and **promoting peer exchange and learning**.



It is me, Vice Director
Nursing department detect abnormal alerts early



Supervisor of nursing quality
Mobility management



Physician, nurse, student, physiotherapist, teacher
Interdisciplinary teamwork and common concerns.



Education of protective tools

CONCLUSIONS

The "PI Map Power BI" dashboard facilitated **real-time tracking and management**, fostering collaboration between managers and clinical units for improvement. **Visualized data promoted PI prevention awareness**, leading to a downward trend in high-incidence units and enhanced care quality. This experience underscores the value of investing in BI applications for continuous improvement. Future applications include case management, advanced nursing reports, and manpower utilization monitoring.

ACKNOWLEDGEMENT

We sincerely thank the Information Nurse Practitioners of the Nursing Department for her excellent assistance in creating the Pressure Injury Map Power BI dashboard. In addition, we would like to thank the cross-department IT engineers and AI Center for their unwavering support and technical expertise, which was crucial to the success of the project.

CONTACT INFORMATION

Name : Hsiu-Chen Yeh
Title : Vice Director of Nursing Department and Medical Education
Institution : Hualien Tzu Chi Hospital ,
Buddhist Tzu Chi Medical Foundation
Address : 707, Sec.3, Chung Yang Rd. Hualien, Taiwan, R.O.C.
E-mail : su.1181@yahoo.com.tw
Tel : 03-8561825 ext. 12263