

Power BI increases the accuracy and efficiency in reporting and analyzing surgical indicators

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Introduction

Monitoring indicators is a crucial basis for improving medical quality. In the past, surgical indicators required manual operations and were time-consuming, as they needed to be generated through the Brio Query system and then consolidated with office software to produce reports. Therefore, an attempt is being made to introduce Power BI (Power Business Intelligence) for business intelligence, which can significantly reduce manual operation time, lower data consolidation errors, and provide real-time monitoring of indicators and management.

Methods

Targeting the surgical cases of inpatients, multiple medical data related to patient surgeries were collected from different sources using Power BI. Data cleaning, establishment of associations, and visualization charts were performed. The dashboard monitors the target values, control charts (± 3 standard deviations), and traffic light signals. To ensure the confidentiality of patient surgery-related information, the data is de-identified before being released on the hospital's new cloud decision-making system. Access to the system requires real-time viewing of performance indicators through the hospital's domain and login credentials, and the content varies depending on the user. Finally, before each quarterly meeting, indicators that did not meet the target values are notified to clinical quality physicians by the Medical Quality Department via email for review and improvement, with explanations provided during the meeting.

Results

The surgical indicators were announced in the new cloud decision-making system at the end of 2022, with an average of 160 views per year for each indicator. The modification rates after external indicator reporting from 2022 to 2023 decreased, with QIP dropping from 30.1% to 10.2% and TCPI dropping from 9.6% to 5.2%. The monthly data production process for each indicator was shortened from 45 minutes to 5 minutes, saving operational time and manpower costs, with an annual savings of NT1,507 for each indicator. With a total of 31 external surgical indicators reported annually, the data production time is reduced by approximately 14,880 minutes, saving manpower costs of about NT46,717. The additional benefits of introducing Power BI are (1) the ability to quickly modify concatenation conditions in the Power Query data processing step window without the need for manual multiple comparisons and adjustments, (2) reducing human statistical errors that affect data accuracy, and (3) allowing decision-makers to instantly access and make decisions and strategic actions.

Conclusion

Build surgical indicators using Power BI, visualize data to allow viewers to quickly review trends in departments and specialties, significantly reducing manual work time and costs. In the future, integrate with the Power Automate platform to establish an automatic email notification mechanism. When indicators do not meet the target values, automatically send email notifications to clinical department heads and quality physicians to Enhance efficiency in reviewing and revising indicators.

