MI-CRE 2023 Annual Research Symposium and Policy Forum

Visualised dispensing: An interactive app to monitor biologic medicine dispensing in Australia

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Disclosure of interests statement: None

Is the presenter an HDR student? No

Has this research been submitted or presented elsewhere? No

Abstract

Background: The number of biologic medicines and their associated indications is expanding and the number of patients treated with these medicines continues to grow. In 2021-2022, biologics accounted for eight of the top 10 PBS-subsidised medicines with the highest Government cost.

Aims: This project aimed to develop a system for monitoring biologic medicines use by product and indication and create an interactive dashboard to visualize trends over time.

Methods: We developed a process for extracting and classifying PBS-subsidised biologic medicines according to their authorized indications. Using R statistical software, this indications list was combined with PBS Date of Supply Reports and the Item Code to Drug Mapping File, to create a Shiny App for visualising aggregated monthly biologic dispensings.

Results: Three interactive interfaces were created to visualize dispensing of (1) biologic medicines by PBS item code, (2) all biologics associated with each indication, and (3) biologics by indication. A fourth interface allows for searching of biologic medicine item codes to identify all corresponding indications.

Conclusions: The app provides a visual representation of dispensing data of all biologic medicines allowing for monitoring of monthly dispensing including tracking the uptake of new biologics and their impact on the current market for specific indications. Developing the app has provided a prototype that can be extended to the creation of more sophisticated tools and to other medicine classes. Future work will extend the current app to incorporate predictive modelling for forecasting of biologic medicines use over time.

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Impact: This simple-to-use tool using open-source software and publicly available PBS data assists researchers in monitoring trends in biologic medicine dispensing. We believe that this app will help guide research by providing up-to-date data to assist with feasibility assessments for medicine safety studies, identification of the impacts of external events on dispensing patterns and help predict shortages when uptake of new medicines exceed expected demand.

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