

ENHANCING MEDICATION ADHERENCE: **ECONOMIC AND HEALTH IMPACT OF** **PILLPLAN ADHERENCE PROGRAM**

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MEDICATION ADHERENCE



5 OUT OF 10

patients taking chronic
medications are
NON-ADHERENT

Medication non-adherence remains a major healthcare challenge, particularly among patients with chronic conditions such as diabetes, hypertension, and cardiovascular disease. The World Health Organization (WHO) reported that adherence to long-term therapy averages approximately 50% in developed countries and is even lower in developing countries (WHO, 2003). Poor adherence may contribute to inadequate disease control, increased hospital admissions, higher healthcare costs, and greater morbidity and mortality. Medication non-adherence has also been associated with poorer clinical outcomes across various conditions, including diabetes, cardiovascular disease, asthma, cancer, HIV, and mental illness (Stewart, Moon, and Horne, 2023).

ADHERENCE PACKAGING

Several strategies have been introduced to support medication adherence, including pillboxes, blister packs, pre-packaged medication systems, and electronic medication packaging. These interventions aim to simplify medication-taking routines and reduce missed doses. Pre-packaged medication systems have demonstrated potential in helping patients manage multidrug therapy while improving overall adherence (Phi et al., 2020; Shah et al., 2021). Combining medication organisation with patient education and behavioural strategies may provide additional support for patients experiencing adherence difficulties (Cross et al., 2020).

PillPlan Box

PillPlan is a medication compliance packaging system designed to simplify medication management. Medications are organised into pre-packed pouches according to the prescribed administration schedule, reducing the need for patients to independently sort medicines from multiple containers. This approach is particularly beneficial for patients taking multiple medications or managing complex medication regimens (Ridzuan, 2022).



Figure 1: Compliance packaging
(source: Mayflax)

Recognising the need to evaluate this approach, researchers from the Faculty of Pharmacy, Universiti Teknologi MARA (UiTM) secured funding under the National Grant-Industry Matching Programme (iMAP) 2024 for the project entitled “Enhancing Medication Adherence: Economic and Health Impact of PillPlan Adherence Program.” Through this project, the research team developed the MyPillPro: PillPlan Adherence Program, a structured pharmacist-led intervention integrating PillPlan medication packaging with patient education, medication adherence monitoring, and pharmacist follow-up.

INDUSTRY COLLABORATION Mayflax[®]

The project is conducted in collaboration with Mayflax Sdn. Bhd., the industry partner responsible for repackaging patients' medications into the PillPlan format. The collaboration enables the integration of industry packaging expertise with pharmacist-led clinical services and provides an opportunity to evaluate the practical aspects of medication packaging, logistics, workflow integration, and future scalability. For each monthly supply, pharmacists prepare the patients' medications before sending them to Mayflax for repackaging. Completed PillPlan packs are returned to the respective pharmacies, where pharmacists verify the contents against the patients' prescriptions before dispensing. Any packaging discrepancy identified is returned for correction, providing an important quality-control step.

THE PILLPLAN ADHERENCE PROGRAM

The programme is being evaluated through a three-month quasi-experimental, preference-based study. A total of 102 patients were recruited from the Endocrinology Clinic at Hospital Al-Sultan Abdullah (HASA) and the Centre for Translational Research and Epidemiology (CentRE), Sungai Buloh. Participants selected either the PillPlan intervention group or the routine-care control group.

At baseline, clinical parameters, medication adherence using the Malaysian Medication Adherence Assessment Tool (MyMAAT) (Hatah et al., 2020), quality of life using EQ-5D-5L (EuroQoL, 2026) and willingness to pay were assessed. Patients in the intervention group receive PillPlan packaging, pharmacist-led education, and a supporting patient booklet.

Following the three-month intervention, medication adherence, clinical parameters, and quality of life will be reassessed. Patient satisfaction and willingness to pay will also be evaluated among PillPlan users to explore the programme's acceptability and potential economic value.



Figure 2:
Patient's
booklet cover
page

The project is currently ongoing and is expected to be completed in October 2026. Its findings are expected to provide evidence regarding the feasibility, health impact, economic value, and potential wider implementation of the PillPlan Adherence Program. Ultimately, the project aims to determine whether integrating medication packaging with pharmacist-led support can provide a practical and patient-centred approach to improving medication management.

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