開發人工智慧藥物辨識為基礎之創新住院與門診用藥整合服務

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摘要

根據研究指出，台灣高齡失能病人多重用藥比例高達八成以上，除了增加健保藥費支出之外，多重用藥潛在的藥物交互作用風險也越高。而用藥整合(medication reconciliation)可減少跨院藥品交互作用與重複用藥問題，惟台灣民眾藥物取得方式除了至醫療院所就醫所開立的藥物之外，民眾也會自行至社區藥局購藥，或接受親友間贈藥。由於各醫療機構大多僅有院內開立的藥物資料庫，民眾取得藥物來源多元，但藥物資訊整合不易，許多慢性病患者往往有多重用藥及用藥資訊碎片化問題，容易造成醫事人員在協助民眾進行藥物整合時的不便。

本計畫開發藥事諮詢整合平台，由應用面出發，發展易懂可用的人工智慧視覺辨識(computer vision)引擎，以創新開發的微距目標檢測演算法提供藥物影像資料庫及藥物影像辨識技術，達到整合藥物服務創新的目的，根據調查結果，約有72%的醫事人員在臨床工作上，常常遇到需要藥物辨識的問題，顯示藥物辨識的需求非常大，而在常用查詢工具上，不論是醫院自行開發的藥典、網路搜尋或是雲端藥歷在使用率上相當，顯示目前仍沒有一個最好的查詢輔助工具，而有68%的同仁認為藥物辨識整合諮詢平台所提供的藥物資訊感到有用，並有超過半數認為系統能提供完整的藥物資訊內容、對病人進行藥物整合或諮詢時更加便利，且有助於提供病人更完整的藥物資訊，顯示同仁對於本平台所提供之藥物資訊感到可信，且有64%的同仁較願意使用該平台。

使用意願上，有超過64%同仁願意繼續使用該平台且願意推薦其他人使用，顯示該平台仍有效作為醫事人員藥物查詢之輔助工具，而有64%之同仁認為醫院鼓勵使用人工智慧藥物辨識系統，顯示院方的支持能影響同仁的使用意願。

本平台的開發能創新藥事服務流程，創造智慧醫療藥事服務，建立用藥安全生態系，團隊將針對問卷建議結果持續改善，提升查詢效率，健全藥物資訊，提供更完善的功能以供醫事同仁使用，創造與人工智慧結合有效且高品質的藥事整合服務，營造友善健康的用藥安全服務網絡，有助於提高就醫病人用藥安全。

中文關鍵詞：藥物辨識、人工智慧、藥事諮詢、用藥安全

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Abstract

According to the study, the proportion of elderly and inseconded patients in Taiwan is more than 80%, and in addition to increasing the cost of health care drugs, the risk of the potential drug interaction of multiple drugs is higher. Drug integration can reduce cross-hospital drug interaction and repeated drug use, but the Taiwanese people's access to drugs in addition to medical hospitals opened drugs, the public will also go to the community drug bureau to buy drugs, or accept gifts from relatives and friends. As most medical institutions only open a drug database in the hospital, the public access to a variety of drug sources, but drug information integration is not easy, many chronically ill patients often have multiple drug use and drug information fragmentation problems, easy to cause medical personnel in assisting the public to carry out drug integration inconvenience.

This plan to develop a pharmaceutical consulting integration platform, starting from the application, the development of easy to understand available artificial intelligence visual recognition (computer vision) engine, with innovative development of macro target detection algorithm to provide drug image database and drug image identification technology, to achieve the goal of integrating drug service innovation, according to the survey results, about 72% of medical staff in clinical work, often encounter the need for drug identification problems, showing that the need for drug identification is very large, and commonly used query tools, Whether it's a pharmacopeia developed by a hospital, an Internet search, or a cloud drug calendar that's fairly well used, it shows that there's still not a best query aid, and 68 percent of my colleagues think that the drug information provided by the Drug Identification Integration Advisory Platform is useful, and more than half think that the system can provide complete drug information content, make it easier for patients to integrate or consult, and help provide patients with more complete drug information, showing that colleagues are credible about the drug information provided by the platform, And 64% of my colleagues are more willing to use the platform.

In terms of willingness to use, more than 64% of colleagues are willing to continue to use the platform and are willing to recommend others to use it, showing that the platform is still effective as an aid to medical personnel drug inquiries, while 64% of colleagues believe that hospitals encourage the use of artificial intelligence drug identification system, showing that hospital support can affect the willingness of colleagues to use.

The development of this platform can innovate the pharmaceutical service process, create intelligent medical pharmacy service, establish the drug safety ecosystem, the team will continue to improve the results of the questionnaire, improve the efficiency of inquiries, improve drug information, provide better functions for medical colleagues to use, create effective and high-quality drug integration services combined with artificial intelligence, create a friendly and healthy drug safety service network, help improve the safety of medical patients.

Key Words：Drug identification, Artificial intelligence, Pharmacy Counseling, Medication Safety