



# Data solution helps reduce medication errors and relieve pressure on staff

Taiwan hospital recommends Medi-Span Clinical to maintain drug safety and enhance pharmaceutical intelligence

“The National Cheng Kung University Hospital (NCKUH) is the largest university medical centre and the most well-equipped teaching hospital in the south of Taiwan. As such, my expectations toward the pharmacy department have naturally become a benchmark for many other hospital pharmacies,” Director Cheng Ching-Lan said with enthusiasm when discussing her role as the Director of Pharmacy at NCKUH.

To help the hospital excel and set those high standards, Director Cheng realised NCKUH needed an automated drug data solution to both reduce medication errors during prescribing and dispensing and relieve staff from the pressure of constant database updates. The answer she found was Medi-Span® Clinical from Wolters Kluwer.

## A lifelong career in pharmaceutical research

When Director Cheng was still pursuing her master’s degree in clinical pharmacy at NCKUH, she met her mentor, Professor Kao Yea-Huei. Professor Kao is the Founding Director of the NCKUH Pharmacy Department. She also set up the first clinical pharmacy research institute in Taiwan and raised funds for its Fellowship program to boost the training and expertise of fellow pharmacists and researchers.

Under the Fellowship program, Director Cheng was able to receive pharmaceutical training in the paediatric department of NCKUH from 2002 to 2003. After which, she headed to Pennsylvania in the U.S. for an internship at the Children’s Hospital in Philadelphia. Upon return, she began her PhD to continue her educational journey in the realm of pharmaceutical science.



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Director Cheng Ching-Lan, Director of Pharmacy, NCKUH



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## Inspiration found working in U.S. healthcare

In Pennsylvania, Director Cheng learned that the U.S. has adopted a completely different workflow from Taiwan. “Many U.S. hospitals at that time had already automated their drug dispensing processes,” she explained. “The main responsibilities of pharmacists were prescription review and clinical care. Conversely, in Taiwan, the amount of prescriptions that needed to be dispensed at the outpatient level is so huge; pharmacists cannot verify everything and advise physicians to make changes when necessary.”

U.S. hospitals also have dedicated technicians to prepare ready-to-use medications in the exact portions required by inpatients under the supervision of a pharmacist, so, nurses can readily administer these drugs when needed.

However, in Taiwan, nurses are the ones who handle both the doses and administration of drugs. This not only increases their workload but is also likely to result in errors.

“I learned through my internship that American healthcare has surpassed Taiwan in terms of automation and how valuable it would be to have a smart system providing prescription and dispensing assistance,” Director Cheng said. “So that, regardless of whether I am looking for a particular medication, confirming a repeated prescription, or verifying drug interactions and dosages, I would remain efficient and accurate. I believed this would relieve the work and psychological burdens of clinicians.”

Reflecting on the challenges faced by Taiwanese pharmacists, Director Cheng noted that medication errors are hard to avoid. She added that, “for neonatal and paediatric patients, which represent a vulnerable population, additional care and detailed dosing information is essential. I have come across a case of a premature baby where the physician in charge made a prescribing error that was not picked up by the pharmacist or the system. Fortunately, the error was discovered later during one of the follow-ups and no major mishap took place.”

## The decision to use Medi-Span Clinical

After taking over the role of Director of the NCKUH Pharmacy Department, Director Cheng realised even though the Taiwanese hospital system has continued advancing in technological maturity and care quality, significant staff time is still required to maintain the vast amounts of drug information. The current system is unable to cope, and this overload was leading to low levels of user acceptance and satisfaction among pharmacists and other clinicians.

Director Cheng believed Medi-Span Clinical was the right tool to achieve the type of automation she has envisioned since her internship days. Medi-Span Clinical is an automated drug data and clinical screening solution from Wolters Kluwer which aims to support clinicians with making better informed medication-related decisions across the continuum of care. Director Cheng explained Medi-Span Clinical has several unique features that can overcome specific challenges faced by present-day clinicians and pharmacists.

Firstly, pharmacists spend a significant amount of time maintaining and updating the medication database. The task can be daunting and stressful when pharmacists are not able to find time from their usual clinical duties. Medi-Span Clinical is supported by a multidisciplinary editorial team with medical and pharmaceutical expertise to deliver best-practice evidence and recommendations. With that information integrated into an electronic medical record (EMR) or other system and used to automatically perform clinical safety screenings, it alleviates the burden of having to manually review drug decisions.

Medi-Span Clinical databases are continuously updated, giving users a global perspective on the most current regulations, medication use, and safety advice. It's equivalent to having an army of expert support, backed by novel application programming interfaces, and a modular design for quick and easy deployment.



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Director Cheng Ching-Lan, Director of Pharmacy, NCKUH

Secondly, Director Cheng said Medi-Span Clinical has a smarter medication warning system that helps medical professionals to conquer “alert fatigue.” The current dilemma encountered by Taiwanese pharmacists is that existing warning systems are too rigid, and they trigger the same alerts regardless of the clinician’s practice and situation. This causes clinicians to be frustrated and to ignore these redundant and unhelpful warnings. Medi-Span Clinical enables users to tailor alert settings so only notifications that are deemed most critical to patient safety will be displayed.

## Enhancing professional development

Director Cheng highlighted an incident at the initial stage of adopting Medi-Span Clinical. Pharmacists were the first batch of healthcare professionals exposed to the solution at NCKUH because there were concerns around user acceptance. Dr. Cheng recalled an occasion in which a doctor accidentally prescribed a new drug meant for treating heart failure to a non-cardiac patient, an error likely made because the names of drugs were too similar. Fortunately, Medi-Span Clinical alerted the pharmacist of the inappropriate drug usage. After reviewing the alert, both physician and pharmacist realised the wrong drug was prescribed. This incident, Director Cheng believed, helped expedite the acceptance of the solution by proving its value in practice.

Director Cheng predicted that incidents like that one are likely to be greatly reduced once Medi-Span Clinical is expanded into the EMR for all NCKUH’s users to support their activities prescribing and dispensing drugs without having to exit their workflow to access multiple systems.

As a teaching hospital, every semester, NCKUH accepts 30 to 40 interns into its six-year-long undergraduate pharmacy course, in addition to new students. It is crucial for students and interns to quickly learn and become familiar with the workflow, interpreting a prescription and obtaining relevant information on a particular drug. As pharmacists in Taiwan need to focus on their frontline duties, it is difficult for them to spend time working with interns to improve their overall professional knowledge.

A solution like Medi-Span Clinical can also serve as a senior advisor, assisting at the point of care, supporting decisions by offering vital insights, like drug-to-drug interactions, and dosage screening, providing important teachings for both interns and frontline pharmacists alike.

“The most important task for pharmacists is maintaining medication safety,” Director Cheng asserted. “Medi-Span Clinical, with its advanced features and knowledge base, will become invaluable in supporting clinicians’ decisions, reducing alert fatigue, and improving clinical effectiveness. With the successful implementation in NCKUH, I look forward to big improvements in the pharmacies across Taiwan.”



## National Cheng Kung University Hospital (NCKUH)

National Cheng Kung University Hospital in the North District of Tainan, Taiwan, opened to the public in 1988. Affiliated with National Cheng Kung University, it provides general medical and surgical hospital services.