

當科技走進醫療 我們準備好了嗎？

AS TECHNOLOGY TRANSFORMS HEALTHCARE,
ARE WE READY?

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Image courtesy of Professor Yu-Chi Chen and the Secretariat

智慧醫療的另一面

近年來，智慧照護逐漸成為醫療健康領域的重要關鍵字。從智慧手環監測心跳與血氧，到手機 app 記錄血糖與血壓，再到醫院的數位掛號、線上繳費與遠距醫療服務，科技正以前所未有的速度進入人們的日常生活。

看似便利的科技讓人們能即時掌握健康狀況，但在智慧醫療快速發展的同時，也帶來一個問題。為什麼有些人能熟練運用健康科技管理生活，而有些人即使身邊已有各式數位工具，卻仍難以使用？科技已經準備好了，但人們真的準備好了嗎？這也是臨床護理研究所陳俞琪教授多年來持續關注的問題。

The other side of smart healthcare

In recent years, smart healthcare has gained increasing attention in medical practice. Wearable devices are available to monitor heart rate and blood oxygen levels. Mobile apps can be used to track blood sugar and blood pressure. Hospital services now include online appointment booking, digital payments and telemedicine. In these ways, smart technology has already entered people's daily lives, and this adoption of new technology has occurred at an unprecedented pace.

Although smart technologies are convenient and allow people to monitor their health in real time, there is an important question raised by their rapid deployment. Why are some people able to easily use digital health tools to manage their lives, while others still struggle to adopt the new tools? Although the technology may be ready, many people may not be ready to use it. This is



看見健康不均等

長期投入慢性病照護研究的陳老師，很早便開始關注科技在健康管理中的角色。十多年前，她便與跨領域團隊合作，嘗試使用穿戴裝置與 app 協助慢性病患者記錄健康數據，希望將過去手寫的健康紀錄轉換為能呈現健康趨勢的數據資料，協助患者在生活中落實疾病自我管理。

不過在當時行動裝置與網路尚未普及的年代，科技導入醫療照護並不如想像中順利。部分患者不熟悉數位工具操作，而部分醫護人員也未必完全信任病

a topic that Professor Yu-Chi Chen of the Institute of Clinical Nursing has been exploring for many years.

Recognizing health inequities

Prof. Chen has long been engaged in chronic disease care research and was among the first pioneers to focus on the role of technology in health management. More than a decade ago, she began working with an interdisciplinary team to explore the use of wearable devices and mobile apps to help patients with chronic conditions record their health data. The goal of that project was to transform handwritten records into data that could reveal health trends and support patients with daily management of their conditions.



As smart healthcare continues to evolve, is everyone truly prepared to use these innovations to manage their health effectively?

在智慧照護持續發展的同時，每個人是否都已準備好運用這些創新工具，幫助自己做好疾病管理？

Professor Yu-Chi Chen
陳俞琪教授



人回傳的資料。這些經驗讓她逐漸意識到，科技要真正走入醫療照護現場，並不是單純開發出系統或設備就足夠。

真正讓她留下深刻印象的，是一次與父親的對話。有一次，陳老師的父親分享回診時，一位常在門診遇到的高齡病友明明看診號碼早已輪到，仍坐在候診區等待，遲遲沒有進診間。詢問後才知道，對方並不知道需要先使用健保卡插卡報到，才能完成看診流程。這件看似微小的事情，卻讓她意識到一個更關鍵的問題。

隨著醫療體系逐漸數位化，健康不均等不再只來自城鄉間醫療資源分布的差異，也可能源於人們在數位能力與健康資訊取得上的差距。當這樣的差距持續擴大時，原本存在的數位落差可能進一步轉化為健康不均等，甚至在無形中形成新的健康弱勢族群。這也讓她開始思考，在智慧照護持續發展的

At the time, mobile devices and internet access were not yet widespread, and integrating technology into healthcare was not smooth. Some patients were unfamiliar with how to use digital tools, and some healthcare professionals were reluctant to trust the data reported by patients. These experiences led Prof. Chen to realize that bringing technology into clinical settings requires more than simply developing new systems or devices.

A conversation she had with her father left a strong impression on her. He mentioned that during one of his visits to the clinic, he noticed an older patient that he had often seen before at the outpatient clinic. Strangely, this older patient remained seated in the waiting area, even after their number had already been called. When he asked them why they were still waiting, he found out that the patient did not know they needed to check in by inserting their Taiwan National Health Insurance (NHI) card before proceeding with the appointment. Although this may seem like a minor incident, it highlighted a much more critical issue.

As new technologies are implemented to streamline healthcare systems, the key issues leading to health inequities are no longer logistical, such as differences in the distribution of medical resources between urban and rural areas. Now, inequalities may also arise from differences in digital skills and access to health information.



時，每個人是否都已準備好運用這些創新工具，幫助自己做好疾病管理？

科技，也需要學會使用

在這樣的背景下，「數位健康素養 (eHealth literacy)」逐漸成為被關注的一項關鍵能力。數位健康素養指的是個人搜尋、理解並評估健康資訊，並運用數位工具進行健康管理的能力。換句話說，它不只是操作科技的能力，也包含理解資訊，並將其轉化為實際健康行動的能力。陳老師指出，在智慧醫療持續發展的時代，數位健康素養將成為人們參與健康照護的重要能力。

在長期投入慢性病照護的過程中，陳老師與研究團隊發現，數位健康素養與疾病管理之間存在密切關係。當患者具備較高的數位健康素養時，往往更能理解健康資訊，也更有信心參與疾病照護。

當患者能理解健康資訊並看懂相關數據時，也較容易感受到自己對健康狀況的掌控能力。這樣的能力有助於理解資訊，進而影響健康管理行為。例如，有些患者會養成規律監測身體狀況的習慣、調整生活習慣，或主動與醫護人員討論健康問題。

研究團隊也發現，影響人們是否採用數位健康科技的關鍵，其實與數位健康素養密切相關。當人們能理解健康資訊、看懂數據並操作數位工具時，也更願意嘗試並持續使用科技。相較之下，即使家人或醫護人員鼓勵，如果個人對工具仍不熟悉，也未必會開始使用。科技本身並不會自然而然帶來健康改善，只有在人們具備理解與使用科技的能力時，這些工具才可能真正發揮作用。

既然數位健康素養如此重要，陳老師與團隊也開始著手探討，這樣的能力是否能透過教育與學習來培養。於是，他們為第二型糖尿病患者設計了一套以「體驗學習」為核心的課程。

With the implementation of more and more digital tools, these gaps continue to widen, and the digital divide has gradually led to new health inequities, even giving rise to new vulnerable populations. This realization caused Prof. Chen to ponder on an important question: as smart healthcare continues to evolve, is everyone truly prepared to use these innovations to manage their health effectively?

Using technology is something we need to learn

In the context of medical care, 'eHealth literacy' is emerging as a key capability. This term refers to a person's ability to search for, understand and evaluate health-related information, as well as their ability to use digital health management tools. A person with high eHealth literacy should have the ability to understand information and translate it into concrete health-related actions, rather than simply operating the technology. Prof. Chen points out that in an era of rapidly advancing smart healthcare, eHealth literacy will become an essential skill for participating in one's own care.

Through years of work in chronic disease care, Prof. Chen and her research team have found a close connection between eHealth literacy and disease management. Patients with higher levels of eHealth literacy are generally better able to understand health information and are more confident in engaging in their own care.

When patients can interpret health information and make sense of relevant data, they are more likely to feel a sense of control over their own health. This sense of control improves understanding, in turn influencing health behaviors. For example, some patients begin to regularly monitor their condition, adjust their daily habits, or take a more active role in discussing health concerns with healthcare providers.

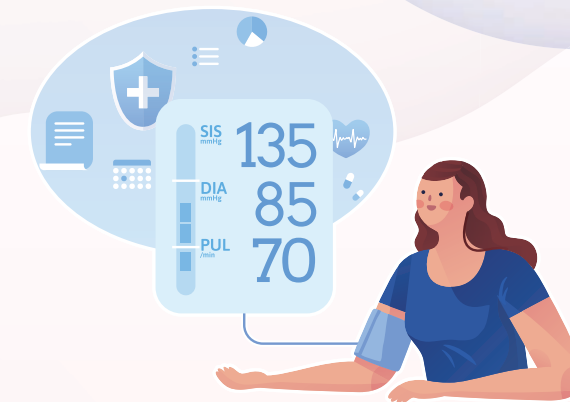
The research team found that a major factor influencing whether people adopt digital health technologies is their eHealth literacy



課程從生活情境出發，介紹醫療數位化在日常生活中的各種場景，例如在醫院使用健保卡插卡報到、數位繳費，或透過 app 與穿戴裝置記錄血糖與健康數據。透過貼近日常生活的設計，原本抽象的數位健康概念具體化，也讓參與者理解科技如何應用在健康管理中。

課程中安排小組討論與實際操作，讓參與者彼此交流使用科技照護工具的經驗。有趣的是，當課程加入小組任務後，參與的長輩反而變得格外投入。陳老師笑著回憶，有些人甚至會擔心自己成為「豬隊友」，因此每天都特別認真地記錄健康數據。

隨著課程進行，參與課程的長輩甚至自發成立通訊群組。當有人在操作 app 遇到問題時，常常在團隊



level. When individuals can understand health information, interpret data and use digital tools, they are more willing to try new technologies and continue using the tools they have already begun to use.

In contrast, people may hesitate to adopt new tools if they feel unfamiliar, even if they receive encouragement from family or healthcare professionals. The availability of technology alone cannot lead to better health outcomes. Tools can only be effective when people have the ability to understand and use them.

Recognizing the essential importance of this capability, Prof. Chen and her team began exploring how to best develop eHealth literacy using education and learning activities. As a result of their studies, they have designed a program for patients with type 2 diabetes centered on experiential learning.

The program begins by introducing potential users to everyday scenarios in which digital healthcare appears. These scenarios include checking in at the hospital using a NHI card, making digital payments, and using apps or wearable devices to track blood sugar and other health data. By grounding the content in familiar situations, abstract ideas about digital health become more concrete, helping participants better understand how technology is applied in health management.

After introducing scenarios, participants engage in group discussions and hands-on activities, sharing their experiences using digital health tools. Interestingly, once group tasks were introduced, many older participants became more engaged. Prof. Chen recalled that some participants were even worried about letting the group down, which motivated them to record their health data more diligently every day.

Over time, the participants grew to know each other better and even formed their own messaging groups. When someone

尚未回覆前，群組中的其他人便已分享解決方法。透過這樣的交流互助，原本對科技陌生的人逐漸建立信心，也開始將數位工具運用於健康管理。

陳老師與團隊的系列研究中指出一個重要方向，在智慧醫療快速發展的時代，科技固然重要，但更重要的是讓人們有能力理解並善用這些工具，科技才有機會真正發揮在健康照護中的價值。

回到照護的本質

在智慧醫療快速發展的同時，人們也逐漸看見另一個現象。對許多人而言，新的數位設備與健康 app 可能帶來不安與壓力。當系統功能愈來愈複雜時，容易讓人對科技產生焦慮；過多的訊息通知，也可能讓使用者逐漸失去回應意願，甚至放棄使用。

encountered difficulties using an app, others in the group would step in to offer solutions, often before the research team could respond. Through this kind of peer support and exchange, those who were initially unfamiliar with technology gradually built confidence and began incorporating digital tools into their health management.

The research findings from Prof. Chen and her team point to an important lesson. In an era of rapidly advancing smart healthcare, it is critical to ensure that people have the ability to understand and use new tools effectively. Only then can technological developments truly transform healthcare.

Returning to the essence of care

As advancements in smart healthcare continue to be made, another pattern is becoming increasingly apparent. For many people, new digital devices and health apps can bring a sense of unease and pressure. As systems grow more complex, people may develop anxiety or frustration around the technology. For example, an overload of notifications may lead users to disengage or stop using the tools altogether.

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科技的導入，本應拉近人與醫療之間的距離，讓健康照護能更即時回應人們的需求。但如果人們缺乏理解與使用科技的能力，創新科技反而可能形成數位落差，無形中加劇健康不均等。

因此，在推動智慧照護與健康科技發展時，不應只追求技術創新，更需要回到照護的本質，重新檢視科技是否真正融入人們的日常生活。陳老師也提到，健康科技導入照護，從來不只是為了提升便利與效率，許多時候，照護仍需要透過互動、理解與陪伴來完成。

科技的目的，並不是取代人與人之間的連結，而是協助拉近人與照護之間的距離，讓照護更貼近每一位患者的需求。智慧醫療能否發揮作用，關鍵不在於科技的進步，而在於每個人是否都有能力參與其中。唯有如此，科技才能融入照護，並在日常生活中發揮實際作用。■

The introduction of technology is meant to bring people and healthcare closer together, allowing the care systems to respond more quickly and effectively to individual needs. However, when people lack understanding and cannot use new tools, the innovations can instead widen the digital divide and unintentionally deepen health inequities.

For this reason, it is essential to consider how people will adopt new tools when introducing smart healthcare and digital health technologies. Furthermore, it will be necessary to remember the essence of care and consider whether new technologies are truly integrated into people's everyday lives. Prof. Chen also emphasizes that introducing technology into care is not only about improving convenience or efficiency. In many cases, healthcare still depends on interpersonal interactions, empathetic understanding and human connection.

By bridging the gap between people and care, rather than replacing human relationships, smart healthcare systems can become more responsive to each patient's needs. Ultimately, the impact of smart healthcare will depend on whether everyone has the ability to participate. Without programs to promote widespread adoption, smart healthcare technologies cannot be meaningfully integrated into care systems or play a practical role in everyday life.

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