

# 全民健康保險制度創新論壇

臺灣醫誌

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## 全民健康保險制度專刊摘要

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# 臺灣健康照護系統在新冠大流行後的挑戰與韌性

## Challenges and resilience of Taiwan's health care system after Covid-19 pandemic

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臺灣的全民健康保險（以下簡稱健保）是一個由政府經營的單一支付者健保系統，於 1995 年 3 月 1 日開辦並於 2013 年 1 月 1 日進行了重要修訂，即所謂的二代健保。這一個健保體系為臺灣公民和外籍居民提供全面的健康照護服務，包括：門診、住院、牙醫、中醫、腎臟透析和處方藥。截至 2022 年，健保的年度支出從 1995 年的 1,568 億新臺幣增加至 7,498 億新臺幣，累計總支出達到 12,353.3 億新臺幣，並直到 2022 年約累積新臺幣 104 億的盈餘（表一）。<sup>1,2</sup> 臺灣的強制性健康保險占當年經常性醫療保健支出 (CHE, Current Health Expenditure) 的比例在 2022 年為 47.7%，這個數字遠低於日本的 77% 但是接近南韓的 46%。<sup>2</sup> 自 1995 年以來，我們觀察到隨著每次中央政府政權更迭後新任政府的健保支出相對於前一任政府約增加了 1.3 至 1.5 倍。但是儘管健保支出逐年增加但是仍然有累積盈餘，這顯示顯示得益於補充保費和費率上調的健保收入仍足以涵蓋目前的健保支出且維持健保預算的收支平衡。

表一. 1995 年全民健康保險後臺灣歷任總統任內的健保財務和醫療保健支出狀況。<sup>1,2</sup>

| (億元)            | 1999  | 2000   | 2008   | 2016   | 2022    |
|-----------------|-------|--------|--------|--------|---------|
| 健保收入            | 1,940 | 2,852  | 4,020  | 5,753  | 7,602   |
| 健保支出            | 1,568 | 2,842  | 4,159  | 5,684  | 7,498   |
| 保險收支餘絀          | 371   | 10     | -140   | 70     | 103     |
| 累積健保收入          | 1,940 | 14,895 | 43,046 | 85,213 | 124,397 |
| 累積健保支出          | 1,568 | 14,494 | 43,309 | 82,735 | 123,353 |
| 保險收支累計餘絀        | 371   | 400    | -265   | 2,474  | 1,040   |
| 醫療保健支出 (NHE)    | 3,787 | 5,478  | 8,994  | 12,060 | 16,951  |
| 經常性醫療保健支出 (CHE) | 3,482 | 5,134  | 8,339  | 11,189 | 15,811  |

經常性醫療保健支出（以下簡稱 CHE）是衡量一個國家在健康照護消費和服務上的支出指標，它還能提供除了健保支出之外更全面的醫療成本評估。臺灣的年 CHE 從 1995 年的 3,482 億新臺幣增長到 2022 年的 1 兆 5,811 億新臺幣，換算成美元約為 530 億美元。臺灣的 CHE 在每次中央政府更迭時的變化與健保支出的變化相似，在新任政府任內的支出均較前一任政府任內的支出增長 1.3 至 1.6 倍，但是臺灣的 CHE 明顯低於經濟合作暨發展組織 (OECD) 平均支出的約 2,040 億美元、日本的 4,870 億美元和韓國的 1,620 億美元（2022 年）。<sup>2</sup> 而 2022 年臺灣人均 CHE 的 2,274 美元也顯著低於 OECD 平均人均 CHE 的 4,986 美元、日本人均 CHE 的 5,251 美元和韓國人均 CHE 的 4,570 美元。CHE 佔國內生產毛額 (GDP) 的百分比則可以反映一個國家分配在醫療保健方面的資源相對於其經濟

規模上比例，而臺灣的 6.97% 遠低於 OECD 平均值的 9.2%、日本的 11.5% 和韓國的 9.7%（2022 年）。<sup>2,3</sup> 以上這些比較顯示出臺灣的整體醫療支出低於已開發經濟體的平均水準。

自全民健康保險推出以來臺灣的醫師數量從 1995 年的 24,462 人（每千人口 1.1 人）增加到 2022 年的 54,014 人（每千人口 2.2 人），與此同一時期註冊專業護理師的人數從 27,038 人（每千人口 1.3 人）增加到 140,514 人（每千人口 6.0 人），然而這兩項數據仍低於 2021 年 OECD 國家的平均值的每千人口 3.7 名醫師和 9.2 名護理師。<sup>4</sup> 相比之下日本和韓國每千人口各有 2.6 名執業醫師及 12.1 名和 8.8 名護理師。<sup>3</sup> 臺灣的健保從健康照護的財務和人力資源的角度來看已實質成為國人主要的醫療保健系統，這一個依賴強大的私立醫療服務提供者的網絡所建構的涵蓋全民的健康照護體系成功地提供被保險人兼顧可近性及全面性的醫療服務。臺灣的醫學中心數量從 1995 年的 9 家增加到 2022 年的 21 家，新增的 12 家醫學中心均為民營機構。臺灣醫學中心的地理分佈不均，其中半數集中於臺北市和新北市，自 1995 年以來的政府更迭均未能有效改善鄉村和偏遠地區保險人群在三級醫療機構的醫學中心就醫可及性不足的問題。截至 2022 年，私立醫學中心擁有 20,557 個病床，且 11,998 家私立診所雇用了 18,867 名醫生，確保了在健保系統下的高度醫療可近性（表二）。<sup>4</sup> 臺灣這種在執政更迭的政治變革中保持穩定以私營醫院、私人執業為主的健康照護結構，增強了臺灣醫療服務的可近性，同時反映了基層醫療醫師在醫療政策上的影響力。

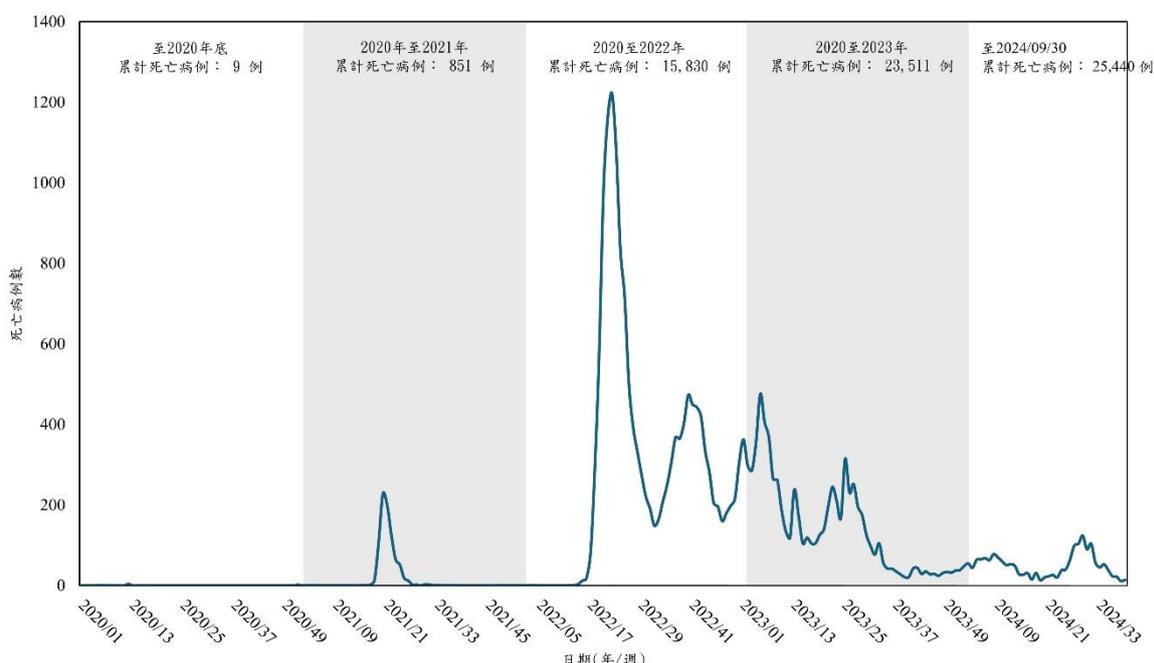
表二. 1995 年全民健康保險後每任總統任期內臺灣醫學中心和西醫診所數量<sup>4</sup>

|                 | 1995   | 2000   | 2008   | 2016   | 2022   |
|-----------------|--------|--------|--------|--------|--------|
| <b>醫學中心數</b>    | 9      | 20     | 17     | 22     | 21     |
| 公立醫學中心數         | 6      | 7      | 3      | 6      | 6      |
| 非公立醫學中心數        | 3      | 13     | 14     | 16     | 15     |
| <b>醫學中心病床數</b>  | 14,121 | 23,359 | 22,565 | 32,055 | 32,334 |
| 公立醫學中心病床數       | -      | -      | 4403   | 11,526 | 11,777 |
| 非公立醫學中心病床數      | -      | -      | 18,162 | 20,529 | 20,557 |
| <b>西醫診所數</b>    | 8680   | 9402   | 10,326 | 11,395 | 11,998 |
| <b>西醫診所西醫師數</b> | 9557   | 10,963 | 13,737 | 16,688 | 18,867 |

然而，在新冠疫情爆發前臺灣的全民健康保險尚未充分應對幾個關鍵挑戰，包括：非傳染性疾病 (NCDs, Non-Communicable Diseases)、醫療品質、醫師和護理人力短缺、健保資訊透明度、健保妥善治理以及國家對健康照護的低投資…等議題。儘管臺灣的標準化癌症死亡率從 1995 年的每 10 萬人口的 136.4 人下降到 2021 年的每 10 萬人口的 118.2 人，但這一個改善的幅度仍不及擁有全民健康保險制度的日本和韓國。在此期間日本的癌症死亡率從每 10 萬人口的 127.4 人降至 88.7 人，而韓國則從每 10 萬人口的 137.2 人急降至 79.9 人。<sup>5</sup> 臺灣心血管疾病的死亡率減少幅度也相對緩慢，只從 1996 年的每十萬人口的 62.2 人下降至 2023 年的每十萬人口的 46.8 人。<sup>5</sup> 儘管在健保系統下臺灣的預期壽命從 1995 年的 74.5 歲增加至 2022 年的 79.84 歲，但是這一個預期壽命延長的速度仍落後於

日本和韓國且仍低於 OECD 的平均值，2023 年日本和韓國的預期壽命已分別達到 84.5 歲和 83.6 歲，而 38 個 OECD 國家的平均預期壽命為 80.3 歲。<sup>3</sup>

持續中的新冠大流行是我們這個時代經歷過得最為重大的全球性悲劇之一，深刻影響了世界各國和每一個人。自 2020 年以來臺灣已累計超過 1,000 萬例新冠確診病例和超過 25,440 新冠死亡，這個死亡數字遠超過同時期的年均流感死亡數（圖一），<sup>6</sup> 臺灣每年流感死亡數甚少高於 1,000 人。新冠肺炎在流行期間迅速成為臺灣的主要死因之一，在 2021 年位列第 19 名、2022 年上升至第 3 名、2023 年則位居第 6 名，新冠肺炎顯著地加重了全國的死亡負擔。<sup>7</sup> 在新冠大流行前臺灣的預期壽命多年來穩步上升，但 2020 年後連續兩年下降從 2020 年的 81.32 歲降至 2021 年的 80.86 歲，到 2022 年再進一步降至 79.84 歲。<sup>8</sup> 這一個預期壽命下降的趨勢可能主要是源於老年人和伴隨慢性病人群新冠肺炎的高發病率和高死亡率所致。2022 年夏季臺灣的新冠病例仍然有一波的激增，每週持續的新冠肺炎死亡數暴露出健康照護系統在處理季節性病毒相關疾病，以及病毒性傳染病從急性爆發轉其為持續傳播期所面臨的挑戰。新冠大流行加劇了臺灣健保系統和更廣泛健康照護框架中長期存在的問題，臺灣因應新冠肺炎的經驗突顯了建立一個更具韌性的健康照護體系的迫切性，這樣一個體系才能在未來的疫情中更有效地控制疾病傳播並挽救生命。此外，臺灣醫療系統隨著人口高齡化、低出生率、氣候危機和數位醫療的快速發展等因素正面臨更大的壓力，這使得健保改革成為臺灣當前極為迫切公共衛生的議題。



圖一. 臺灣自 2020/01/01 至 2024/09/30 新冠肺炎逐週死亡病例數趨勢

從歷史的角度看臺灣於 1995 年推出的健保系統和 1996 年國家的首次民主總統選舉在時間有策略性連結，自此之後的 30 年間，每次選舉中健保的修補措施始終是政治議程上的焦點。過去這些補釘式的改革主張集中於擴大藥物涵蓋範圍、增加新的診斷和治療項目、提高總預算、改善醫護人員的薪酬、擴大私立醫療中心，以及實施共付和自付醫療費用。2024 年的總統選舉首次出現三位候選人中有兩位為醫師的情況，兩位候選人都主張將臺

灣的醫療支出提高至 GDP 的 8%，這一個主張使得醫療改革成為總統和立法委員選舉政策辯論的焦點。選舉後健保改革仍然是立法院的一個關鍵議題，儘管沒有單一政黨擁有立法院的多數席次，但各政黨立委一致認同健保點數應更準確地反映醫療服務的實際成本，導致立法院在 2024 年 7 月通過了一項要求行政院在 2025 年 6 月 30 日前實現健保點數的平均為新臺幣 0.95 元的決議。

衛生福利部（以下簡稱衛福部）在 2024 年九月宣布 2025 年健保總額預算為新臺幣 9,110 - 9,290 億元，約為 280 億美元。<sup>9</sup> 衛福部的新總預算無法達到 2024 年 7 月立法院決議健保點數平均新臺幣 0.95 元的要求，而這一個新的總額預算也僅占 2025 年預估 GDP 的約 3.5%。<sup>10</sup> 若要達到 CHE 佔 GDP 的 8% 的目標，新的總額預算之外的財政缺口約為新臺幣 2,116 億元，這個缺口需要考慮健保以外的資金來源才能填補。健保財務和 CHE 的不足無疑將繼續影響臺灣的醫療人力供需之間的不平衡和健康照護品質。我們可以預期政治領袖、醫療專業人員、病友團體、公共衛生專家、工會和產業代表將持續呼籲行政院提高對醫藥衛生的財務投入來改善健保的永續性和健康照護品質。

2024 年 3 月旨在加強健康照護系統並改善全球群體健康的國際公私合作組織「健康照護系統永續性與韌性合作平台」(PHSSR, Partnership for Healthcare Systems Sustainability and Resilience) 發布了一份名為《臺灣健康照護系統的永續性與韌性》報告，這是一份由位於臺北致力於增進全球韌性並推動創新治理的非政府、無黨派組織「亞太堅韌研究基金會」(CAPRI, Center for Asia-Pacific Resilience and Innovation) 所發表的政策建議報告，這一份適逢其時的報告自發佈起即有效的幫助和促進臺灣健康照護系統改革相關的社會對話與政策討論。<sup>11</sup> 2024 年 8 月由臺灣病友聯盟及遠見雜誌舉辦的一場跨領域專家會談，首次聚集了來自三黨之立法委員、衛福部部長、健保署署長、學者、醫療提供者和病友團體，共同探討臺灣醫療體系所面臨的財務和人口健康挑戰。在這一場首次由全社會參與的健康照護體系改革會議達成了三項重要共識：(1) 建立共同財務責任制的必要性，(2) 擴大收入來源的重要性，(3) 確保醫療系統的長期永續性與韌性。與會者強調當前醫療支出的數據不夠準確、不完整且缺乏透明度。<sup>12</sup> 這個缺失阻礙了醫療從業者、專家和政策制定者對醫療需求的準確評估與知情決策。具體而言為實現具有永續性與韌性的健保之共同財務責任制，需要提高收入與支出數據的透明度。為建設更完善且穩固的健康照護體系需要政府預算的更多財政支持，也才能加速新療法技術和針對老年人口的先進癌症藥物的引進，並為即將到來的超高齡社會做好準備。此外改善醫療機構財務狀況的透明度將可促進跨部門間更貼近現實的討論，深入瞭解醫師、護理師、藥師和醫務人員提供服務的實際成本。適當披露各醫療行為的成本效益細節有助於向公眾說明保費調升的必要性，並鼓勵政府和私營部門共同分擔財務負擔。將健保支付標準與國際治療指引接軌亦能確保病人接受有效且符合最新標準的治療，同時維持臺灣在臨床醫療實務上和醫療創新上的國際競爭力。

實現這些改革的關鍵在於建立一個以科學、證據和社會團結為基礎的新健保治理框架。積極邀請醫療專家和醫學學術組織參與醫療體系改革的對話至關重要，健保的妥適治理和決策可透過納入專家所提供的公正、基於證據的健康建議來加強。在這些關鍵的討論中成立於 1912 年的臺灣醫學會且是臺灣歷史最悠久的醫學組織可議扮演領導的角色，為

紀念健保成立 30 週年臺灣醫學會特別策劃了這一期收錄了 14 篇從實務角度撰寫的論文專刊。我們邀請了具備臨床經驗且在其專業領域受過學術訓練的作者針對各自專業領域內的健保改革議題撰文，這些結合理論基礎與實務應用的文章提供臺灣醫療體系的現況與未來發展全面性觀點。

這 14 篇文章分為四大主題。第一部分聚焦於健保當前的核心議題以及未來可能面臨的挑戰。在《Reflection on 30 years of Taiwanese National Health Insurance: Analysis of Taiwanese health system progress, challenges, and opportunities》中，崔以世界衛生組織的「建構性要素」框架分析健保面臨的基本問題。<sup>13</sup> 隨後是三篇聚焦於醫師、護理師和藥師人力議題的文章：由錢等人撰寫的《Loss of resilience in Taiwan's pediatric care system after the COVID-19 pandemic》；<sup>14</sup> 由廖等人撰寫的《Exploring the Challenges of Taiwanese Nurses in the COVID-19 Post- Pandemic Era》；<sup>15</sup> 以及由黃等人撰寫的《Enhancing Taiwan's Healthcare Sustainability: A Delphi Study on National Medicines Policy Reforms》。<sup>16</sup>

第二部分探討不同層級醫療機構所面臨的挑戰。首先是由紀等人撰寫的《Healthcare for All -- A Critical Review of Taiwan's National Health Insurance System from a Social Institution Lens》<sup>17</sup> 一文提供哲學觀點，隨後為涵蓋各種機構的實證研究文章涵蓋：由黃等人撰寫來自醫學中心經驗之《Quality and resilience of health care from a medical center perspective》；<sup>18</sup> 陳等人撰寫之來自準醫學中心經驗的《Strengthening Resilience and Patient Safety in Healthcare Institutions during the COVID-19 pandemic: Experience from a Quasi-Medical Center》；<sup>19</sup> 吳等人所撰寫之社區醫療機構實證研究《Taiwan's Community Health Care Evolution: Navigating Pandemic Challenges and Shaping the Future》；<sup>20</sup> 以及由余等人所撰之居家進階照護在疫情期間的經驗《Home-based advanced care is a solution to quality health care in rural Taiwan: Lessons learned during the COVID-19 pandemic》。<sup>21</sup> 本主題最後由王等人的《Estimating Taiwan's QALY league table for catastrophic illnesses: Providing real-world evidence to integrate prevention with treatment for resources allocation》一文作為總結。<sup>22</sup>

第三部分特別探討健保中涉及的傳統中醫和牙科這兩個專業領域的議題，包括：林與賴所撰之《Enhancing Traditional Chinese Medicine Healthcare System in Taiwan Post-COVID-19 Pandemic: A Strategic Focus on Specialization》；<sup>23</sup> 以及由陳等人撰寫之《Challenges and Resilience of Taiwan's Oral Health Care System after Covid-19 Pandemic》。<sup>24</sup> 最後，第四部分是針對提升健保內醫療品質進行實證研究，包括：黃等人所撰之《Pharmaceutical Procurement Profits and Universal Health Coverage: Reform to a Sustainable Healthcare and Financing System》；<sup>25</sup> 以及由王等人撰寫之《Effective prevention in clinical practice may save human capital loss: Real-world evidence from Taiwan's National Health Insurance》。<sup>26</sup>

閱讀這些文章後我對健保帶給臺灣社會的醫療福利深感欣慰同時也深切感受到健保改革的迫切性，因為這些文章清楚指出自健保創立以來醫療體系累積的長期問題在新冠大流行衝擊下更加突顯。我希望由臺灣醫學會編輯的這一期專刊能為您提供有關當前健保問題的寶貴資訊與深刻見解，也希望本專刊能激勵您積極參與健保改革的民主進程，以科學、專業且理性的態度共同為健保改革的持續對話貢獻一份力量。

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## 中文摘要

### 1. Reflection on 30 years of Taiwanese national health insurance: Analysis of Taiwanese health system progress, challenges, and opportunities

第一作者：Sian Hsiang-Te Tsuei 崔相德 (doi: 10.1016/j.jfma.2024.07.030)

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#### 摘要

在臺灣全民健康保險即將邁入三十週年之際，本研究回顧了臺灣健康照護體系的政策及績效發展。臺灣成功控制了醫療支出，且逐漸依賴私人資金。浮動點數制的總額預算支付機制偏向獎勵以門診為主的服務，但儘管有數項有利於基層醫療的發展措施，也並未改變以醫院為中心的市場結構。研究結果顯示臺灣的健康照護人力和資源供應逐步改善，具備良好的病人導向性，展現出相當的技術效率以及令人印象深刻的病人照護滿意度。然而，就醫的財務障礙及整體醫療系統的配置效率方面的趨勢令人擔憂。臨床品質的證據顯示醫院表現良好，但基層醫療的表現可能較差。總體而言，儘管健康結果改善緩慢、孕產婦死亡率惡化及財務風險保障不完全，民眾對健康照護系統仍維持較高的滿意度。釐清財務障礙的惡化及財務風險持續存在的原因，對於未來進行潛在的財務調整討論至關重要。提升配置效率可以通過支持基層醫療的功能與品質，並加強病人導向的教育及激勵措施來實現。此外，需進一步了解健康狀態改善緩慢和孕產婦死亡率反彈的原因。

#### 關鍵字

健康體系、健康政策、全民健康保險、全民健康覆蓋、臺灣

## 2. Loss of resilience in Taiwan's pediatric care system after the COVID-19 pandemic

第一作者：Jien-Wen Chien 錢建文 (doi: 10.1016/j.jfma.2024.09.013)

通訊作者：Jien-Wen Chien 錢建文

### 摘要

在新冠肺炎疫情期間，臺灣的兒科健康照護系統面臨歷史上最嚴重的兒科住院醫師短缺。本研究探討了該短缺的原因、後果及潛在解決方案。2020 年至 2023 年間，兒科住院醫師的招募率下降了 27.3%，造成了主治醫師工作量的增加，並可能對兒科病人的健康結果造成不良影響。相較於韓國和日本，臺灣的新生兒死亡率最高，出生時的預期壽命最低。此外，臺灣全民健康保險給予醫院內兒科醫師的報酬僅為診所醫師的一半，影響了訓練完成之後的兒科醫師留在醫院中擔任兒科專責主治醫師的吸引力。為了維持兒科健康照護系統，政府可以考慮直接按診所報酬標準補償醫院兒科醫師，並轉向論人計酬的支付制度。系統性建議包括提高健康支出占國內生產毛額的比例，以及修訂全民健康保險法以取消總額預算支付制度。為了應對政府財務責任增加的需求，可考慮提高稅收占國內生產毛額的比例。實施這些措施有助於強化兒科健康照護系統，並防止兒科住院照護的崩潰。

### **3. Exploring the challenges of Taiwanese nurses in the COVID-19 post-pandemic era**

第一作者：Zih-Yong Liao 廖咨詠 (doi: 10.1016/j.jfma.2024.03.020)

通訊作者：Lu-Yen Anny Chen 陳律言

#### **摘要**

在新冠疫情過後，大量護理師離職率的變化，凸顯出疫後的臨床困境，也是一個目前尚未充分研究的領域。本研究於 2023 年 5 月至 11 月進行調查工作期間，透過質性研究的方法，運用焦點團體的方式，深入的探討這些困境。本研究利用滾雪球的取樣方式，從不同醫院招募了 33 名護理師，並進行了六場焦點小組的訪談，以了解他們在疫情期間，及疫情後的臨床經歷，並且以主題分析的方式，歸納出兩個浮顯出來的議題：「護理角色在健康照護系統中的隱形地位」以及「護理實務的道德責任」。調查結果顯示，護理師被忽視的角色與其道德責任彼此之間，產生了衝突矛盾感，強調了政策重新評估的迫切需求。本研究倡議，護理工作環境系統性的改變，尤其在全民健康保險系統中對於護理工作價值的低估，需要大幅度的提昇，才可以改善惡劣的工作環境，並減緩長期護理人力的短缺。本研究也深入探討臺灣後疫情時代護理人力的挑戰，強調了政策演變的必要性，以提升對護理產業的支持，並且也建議提供實質的薪酬，來認可護理師在日常病人照護，以及健康教育方面的付出，藉由健康照護機構與護理師之間的合作，來建構更好的工作環境。

## 4. Enhancing Taiwan's healthcare sustainability: A Delphi study on national medicines policy reforms

第一作者：Chih-Fen Huang 黃織芬 (doi: 10.1016/j.jfma.2024.08.018)

通訊作者：Li-Jiuan Shen 沈麗娟

### 摘要

#### 背景/目的

國家藥事政策對於公共衛生與醫療政策至關重要，用以確保民眾獲得可負擔、高品質、及合理使用之藥物。本研究目的為評估臺灣現行國家藥事政策的現狀，找出亟需改善的議題，並透過專家共識提出可行建議，以確保藥物的永續供應和合理使用。

#### 方法

本研究採用修改後的德爾菲法進行二輪調查。第一輪調查識別現行政策需改善的關鍵議題及建議。第二輪調查則請專家評估前述建議的可行性和有效性。專家成員來自藥學、醫學、公共衛生、製藥產業、及病友團體等共 50 位組成，每輪調查皆使用 4 點李克特量表評估相關議題。

#### 結果

第一輪調查識別臺灣國家藥事政策的 13 個關鍵議題，主要集中在藥物的合理使用和可近性。第二輪調查針對這些議題提出 54 項政策改進建議，經專家依可行性及有效性之評估後，其中 20 項被視為強烈建議，23 項為中度建議。政策建議涵蓋藥品給付、藥學專業服務、藥事行政、立法和教育等領域。

#### 結論

本研究顯示臺灣國家藥事政策改革的迫切需求議題，並提出具體的政策建議，期望藉由政策改革，能確保高品質藥物和藥學服務，同時確保臺灣全民健康保險系統的永續運作。本研究也強調，在不斷變化的醫療環境中，採取積極措施，以推動健康照護的永續發展。

### 關鍵字

德爾菲法、健康照護永續性、政策改善、全民健康保險、國家藥事政策

## 5. Healthcare for all — A critical review of Taiwan’s national health insurance system through a social institution lens

第一作者：Chunhuei Chi 紀駿輝 (doi: 10.1016/j.jfma.2024.07.003)

通訊作者：Chunhuei Chi 紀駿輝

### 摘要

自 1995 年臺灣實施全民健康保險 (NHI) 制度以來，此制度在獲得重要改進的同時，也面臨了許多挑戰。在一些國際比較中臺灣全民健保制度獲得許多讚譽，但也得到一些批評，特別在健康照護品質和健康成果上。此全民健保制度持續地獲得非常高的民眾滿意度：通常達到 70 % 至 80 %，且自 2020 年以來更高於 90 %。然而，健康照護提供者的滿意度卻日益下降，特別是關於護理人員薪資偏低、醫師工時過長，以及新藥品納入給付範圍的速度緩慢等。在 2023 - 2024 年總統選舉期間，全民健保制度改革成為候選人之間爭論的議題。

隨著有關臺灣全民健保制度的未來之辯論持續進行，另一個重新浮現的議題是擴展臺灣健康照護系統的私部門財源籌措。考慮的選項包括開放獨立的商業健康保險、擴展補充性的商業健康保險，或增加自費選項。此議題早在全民健保制度實施僅三年後就已成為熱烈辯論的焦點，到 1999 年時已經至少有五項全民健保法修法議案在立法院提出。

本文研究評估的動機在於對這些辯論進行嚴謹的分析並探討臺灣全民健保制度的未來。我們期望從不同且嚴謹的觀點，特別是從社會制度的視角審視全民健保制度來為此辯論增加新的聲音。我們將先介紹我們分析架構中的倫理和規範性假設及基於這些假設所建構的全民健保制度之目的，接著討論臺灣全民健保制度的生態、及從這些倫理和規範性及設所評估的優點與缺點，以及未來挑戰。結論中我們將提出關於臺灣全民健保制度如何前化以達成其目的之建議。

本分析基於三項倫理原則，(1) 尊重人性尊嚴，(2) 自主決定權，及(3) 社群倫理等指引我們選擇下列七項全民健保的目標：

- (1) 促進人口健康，透過：
- (2) 公平的健康照護可近性；
- (3) 公平的健康照護財政負擔；
- (4) 公平的健康照護品質改善；
- (5) 公開，包容各方，及民主的治理；
- (6) 有效率且永續的資源投資；以及
- (7) 對促成更佳的社會有貢獻。

以上述目標為指引，本文對臺灣的全民健保制度作了四方面的制度性政策建議：

- (1) 治理，
- (2) 財源籌措，
- (3) 健康照護的堤共，及
- (4) 韌性，永續，及社會凝固。

## 6. Quality and resilience of health care from a medical center perspective

第一作者：Abel Po-Hao Huang 黃博浩 (doi: 10.1016/j.jfma.2024.09.014)

通訊作者：Ming-Shiang Wu 吳明賢

### 摘要

國立臺灣大學醫學院附設醫院（臺大醫院）在應對新冠肺炎疫情方面展現了卓越的韌性與適應能力。自 2020 年初疫情爆發以來，臺大醫院位於臺灣醫療健康照護系統的前線，採取積極措施來預防與應對疫情，醫院迅速設立專責的門診和病房，這對於隔離並治療新冠肺炎患者至關重要。臺大醫院也在協助政府開發診斷試劑和疫苗方面發揮了關鍵作用，並為全球對抗疫情作出了貢獻，為應對新冠肺炎的長期影響，臺大醫院於 2021 年 9 月成立了整合醫療特別門診，提供物理治療、職能治療和語言治療，來幫助患者康復並重返正常生活。臺大醫院同時也向國際分享其防疫經驗，參加視訊會議討論防疫措施及最佳實踐。在照顧前線醫護人員方面，醫院成立跨學科照護團隊，提供心理支持、基本日常生活援助以及有效的社會、心理和精神健康支持計劃。總結而言，臺大醫院在新冠肺炎疫情期間展現出高效的應對能力和對醫護人員的關懷，為未來應對新興傳染病挑戰提供了寶貴的見解。

### 關鍵字

新型冠狀病毒肺炎、健康照護、品質、韌性

## 7. Strengthening resilience and patient safety in healthcare institutions during the COVID-19 pandemic: Experience from a quasi-medical center

第一作者：Szu-Ying Chen 陳思穎 (doi: 10.1016/j.jfma.2024.09.035)

通訊作者：Shu-Ching Chi 紀淑靜

### 摘要

新冠肺炎全球大流行暴露了健康照護系統的脆弱性，進一步危及病人安全。本文探討了健康照護工作者對韌性和病人安全的看法，分析義大醫院進行臺灣病人安全文化調查的數據，以及在義大醫院實施病人安全巡訪的結果。在 2021 年和 2022 年，分別有 1,340 名和 1,114 名臨床部門的員工完成病安文化調查問卷。2022 年，有 89 名臨床部門的領導參加病安巡訪。在四個職業類別中，護理人員和醫療技術人員的安全態度問卷得分較低，而護理人員的韌性和工作生活平衡的感受分數最低。在兩年的問卷調查中，護理人員在 2022 年的安全態度問卷得分顯著低於 2021 年，而藥師的工作條件和工作生活平衡的感受分數也顯著下降。除了醫師外，所有職業類別的韌性感受分數在疫情期間均顯著下降。中介分析顯示，團隊氛圍、工作滿意度、管理感受、工作條件和工作生活平衡與安全氛圍直接相關，而韌性可作為中介因子，間接增強了這些關係。透過病人安全巡訪，領導階層可確認第一線人員關切的病人安全的議題，包括人力資源、系統、流程、設備和工作環境。這些議題中，人力短缺和低薪成為最緊迫的挑戰，而出色的領導能力則被認為是增強韌性和病人安全的重要因素。根據本研究結果，建議醫療機構應定期實施病安文化調查和病人安全巡訪。此外，健康照護和政府機構都迫切需要進行改革，以改善健康照護工作者的福祉。

### 關鍵字

韌性、病人安全、安全巡查、新冠肺炎、全民健康保險

## 8. Taiwan's community health care evolution: Navigating pandemic challenges and shaping the future

第一作者：Tsan-Yu Wu 吳璣宇 (doi: 10.1016/j.jfma.2024.08.009)

通訊作者：Shao-Yi Cheng 程劭儀

### 摘要

新冠大流行顯著影響了全球的人口結構和健康照護系統，但臺灣的基層醫療診所在疫情期間展現了卓越的韌性，積極協助社區進行快篩、施打疫苗，並整合遠距醫療服務。然而，疫情的衝擊仍然改變了基層診所的運作模式，並減少了部分預防保健服務。為了應對這些挑戰，臺灣採取了多種策略，將遠距健康照護、居家照護計畫、社區照護計畫和在宅住院等創新項目作為核心，以減緩疫情的影響，展現出以病患為中心的前瞻性健康服務模式。

為了進一步增強健康照護系統的韌性，仍需改革臨床實務、強化預防醫學應變計畫、推廣遠距醫療服務、推動居家臨床照護，並加強醫療整合。臺灣現有的前瞻性計畫，如數位智慧健康照護，為構建具有韌性且以病患為中心的健康照護系統奠定了穩固基礎。各方的齊心努力和醫療創新，對於建立全面、可近且具回應性的未來健康照護系統至關重要。臺灣以全民健康福祉為優先考量，為全球健康照護系統樹立了值得效仿的典範。

### 關鍵字

新冠肺炎、居家照護、基層醫療、預防醫學、遠距醫療

## 9. Home-based advanced care is a solution to quality health care in rural Taiwan: Lessons learned during the COVID-19 pandemic

第一作者：Sang-Ju Yu 余尚儒 (doi: 10.1016/j.jfma.2024.08.010)

通訊作者：Jung-Yu Liao 廖容瑜

### 摘要

#### 背景/目的

臺灣政府自 2016 年起推行居家醫療照護整合計畫 (Integrated home-based medical care program)，而新型冠狀病毒 (COVID-19) 疫情的大流行加速了醫療模式的轉變，使得醫療服務從醫院為主轉向社區為主，特別針對衰弱的高齡者提供進階的居家醫療照護服務。本研究聚焦於居家進階照護，例如在宅住院 (Hospital at home, HaH)，並探討在臺灣偏鄉社區中，以居家醫療照護模式實施 HaH 的可行性與韌性。

#### 方法

本研究採取病例回溯的研究方法，回顧 2020 年 2 月至 2022 年 8 月的醫療紀錄。兩位臨床醫護專業人員從電子病歷中篩選出 189 位於 COVID-19 疫情期間接受居家健康照護的病人資料。若病人因急性感染症在家接受治療，則該事件即被記錄為一次 HaH 事件。

#### 結果

2020 年至 2022 年間，共發生了 62 次 HaH 事件，每人平均發生 1.4 次 HaH 事件。需接受 HaH 治療的主要原因是肺炎，其次為泌尿道感染、軟組織感染及敗血症。77.4% 的病人完成了 HaH 治療，且在 30 天追蹤中未出現急性感染的復發情況。

#### 結論

不同形式的居家健康照護提升了偏鄉地區醫療服務的韌性。隨著臺灣在 2025 年邁入超高齡社會，至關重要的是全民健康保險政策應支持各種居家照護模式，以解決交通議題並在醫療照護服務不足的偏鄉地區維持高品質的照護。

### 關鍵字

新冠肺炎、在宅住院、偏鄉地區

## 10. Estimating Taiwan's QALY league table for catastrophic illnesses: Providing real-world evidence to integrate prevention with treatment for resources allocation

第一作者：Jung-Der Wang 王榮德 (doi: 10.1016/j.jfma.2024.05.011)

通訊作者：Jung-Der Wang 王榮德

### 摘要

#### 背景/目的

治療技術可以改善病人的存活率或生活品質，但也會增加財務負擔；而有效的預防則可以同時帶來這三方面（長壽、健康、財務）的好處。本文以各種重大傷病的真實數據為例，估算診出某病後，終身平均每生活品質調整人年（QALY，或稱「健康人年」）或生命年（LY）健保所花費的金額，以及透過預防措施可能節省的終身健康損失量（以 QALY/LY 計算）和終身醫療成本（LMC）。

#### 方法

我們透過串聯臺灣全國性的資料庫，包括全民健康保險資料，建立了研究世代。我們開發出估算終身存活函數的方法，並將其與醫療成本和生活品質分別相乘，終身累加起來以估算各重大疾病的終身醫療成本、健康餘命（QALE）與平均餘命（又稱預期壽命）（LE）以及每 QALY/LY 的終身平均成本。透過與年齡、性別和年份相匹配的臺灣生命統計模擬出的對照組進行比較，我們得出發生該病後損失多少健康餘命或平均餘命。

#### 結果

各種疾病的終身成本效果比，每 QALY 或 LY 分別為：呼吸器依賴（或稱為長期插管呼吸治療）的昏迷病人 96,800 美元、透析 16,200–20,000 美元、脊髓損傷 5,500–5,900 美元、重大創傷 3,400–3,600 美元及各種癌症約 2,900–11,900 美元。成功預防一個肺癌、肝癌、口腔癌、食道癌、胃癌、鼻咽癌或卵巢癌，終身可節省約 28,000–97,000 美元，並避免了超過 10 個 QALY 的損失；而針對末期腎病、中風、脊髓損傷或重大創傷的預防，終身可節省約 55,000–300,000 美元，並避免了 10–14 個 QALY 損失。基於真實世界數據來估算各種不同健康科技的終身健康效益時，計算各病之健康餘命（或平均餘命）損失做基礎互相比較，才能降低疾病之間由於年齡、性別、與得病年代不同的干擾；經濟學上稱之為差中差 (Difference-in-differences) 估計法。

#### 結論

將預防與治療整合起來做資源分配是可行的，且將有助於提升公平性和效率。

#### 關鍵字

預防、健康科技評估、終身醫療成本、生活品質、廣義成本效果分析

## **11. Enhancing Traditional Chinese Medicine healthcare system in Taiwan post-COVID-19 pandemic: A strategic focus on specialization**

第一作者：Shun-Ku Lin 林舜毅 (doi: 10.1016/j.jfma.2024.09.012)

通訊作者：Jung-Nien Lai 賴榮年

### **摘要**

鑒於守護臺灣先民健康的文化背景及歷史傳承，即便在精準醫療、再生醫療和智慧醫療各領域日新月異的當下，中醫藥已經融入臺灣健康照護醫療體系及全民健康保險給付，臺灣民眾也廣為運用中醫、西醫兩種醫療體系，各自為主或整合的方式照顧他們的健康。本文旨在探討在日益複雜的健康照護挑戰中，為了提升與西醫各專科協同、整合的照護品質（如慢性病用藥、癌症用藥等的中西藥交互作用）、降低照護過程所產生的醫源性風險等，中醫在教育、訓練、研究各方面的專科化的議題日趨重要，本文借鑒了南韓建立韓醫專科醫師系統的經驗，回顧臺灣衛生福利部在推動疫情防疫、居家醫療、癌症輔助療法 etc 醫療品質提升的中醫專科培訓，優化醫療資源的使用，並通過將中醫實踐與現行醫療需求、政策相結合，促進健保系統的長期可持續發展。

### **關鍵字**

健保系統、健康照護整合、醫源性風險、專科化、傳統中醫

## 12. Challenges and resilience of Taiwan's oral health care system after Covid-19 pandemic

第一作者：Ting-Chen Chen 成庭甄 (doi: 10.1016/j.jfma.2024.09.039)

通訊作者：Wender Lin 林文德

### 摘要

本研究探討臺灣口腔健康照護體系在應對新冠肺炎時的韌性，聚焦於疫情前的狀況、疫情的影響以及提升未來韌性的政策建議。在臺灣，口腔疾病普遍存在，2016 年有 80.48 % 的成年人患有牙周病，65.43 % 的五歲兒童有蛀牙。臺灣的全民健康保險 (NHI) 涵蓋超過 99 % 的人口，提供全面的牙科照護。自 1998 年實施的總額預算 (GB) 制度確保了財務穩定性。在疫情期間，臺灣的牙科就診人次於 2021 年相比 2019 年下降了 5.1%。儘管就診人次減少，GB 制度維持了財務穩定，減輕了醫療機構的財務衝擊。疫情對醫療照護人員的身心健康造成負面影響，增加了離職意向。然而，臺灣的執業牙醫人數在 2016 至 2022 年間保持穩定，並有小幅增長。城鄉差距持續存在，且職場流動性增加，顯示牙醫專業人員的流動性提升。為增強韌性，提出以下建議：1. 加強口腔健康照護體系的分級醫療：平衡地區間的牙科資源，並改善醫院與診所之間的轉診；2. 提供以病患為中心的整合性照護：將口腔健康納入整體的預防保健範圍，並依各生命階段提供全面性服務；3. 整合數位科技：推動遠距牙科服務，並發揮臺灣在資訊與通訊技術 (ICT) 上的優勢。

### 關鍵字

COVID-19、牙醫人力、口腔健康照護體系

### **13. Pharmaceutical procurement profits and universal health coverage: Reform to a sustainable healthcare and financing system**

第一作者：Weng-Foung Huang 黃文鴻 (doi: 10.1016/j.jfma.2024.10.003)

通訊作者：Li-Jiuan Shen 沈麗娟, Yi-Wen Tsai 蔡憶文

#### **摘要**

##### **背景**

本研究以單一支付系統的臺灣全民健康保險為範例，推估醫院藥品採購利潤，並評估其對醫院整體財務之影響。

##### **方法**

本研究收集 2015 年至 2021 年期間全民健康保險特約醫院之公開財務報表和健保醫療服務申報數據，分析每家醫院的藥品採購利潤、醫療服務利潤以及總營運利潤，並探討藥品採購利潤對於醫療服務利潤之影響。

##### **結果**

納入研究中所有醫院的總藥品採購利潤由 2015 年的新臺幣 306 億元逐年提升至 2021 年的 470 億元。2021 年共有 28.1% 醫院之醫療服務利潤呈現赤字，而藥品採購利潤顯著提升了這些醫院的財務表現，不僅增加利潤，更減少或抵消了醫療服務所產生的赤字。藥品採購利潤對於醫療服務利潤較大的醫院影響更為顯著，顯示大型醫院從藥品採購利潤中獲益更多。

##### **討論**

在研究期間內，平均藥品採購利潤增加，對各層級醫院的財務穩定性影響逐漸增加。醫學中心的總營運利潤與醫療服務利潤之間的差距逐步擴大，代表非醫療服務利潤的增加。本研究提出了一項支付政策改革建議，矯正因藥品採購所產生藥價差的扭曲現象，目的在促進全民健康覆蓋下健康照護及財務系統的永續性。

#### **關鍵字**

藥品採購利潤、全民健康覆蓋、財務永續性、醫療服務利潤、藥品回扣

## 14. Effective prevention in clinical practice may save human capital loss: Real-world evidence from Taiwan's National Health Insurance

第一作者：Fuhmei Wang 王富美 (doi: 10.1016/j.jfma.2024.10.011)

通訊作者：Jung-Der Wang 王榮德

### 摘要

#### 背景/目的

有效的預防措施可以保護勞動人口的健康，減少人力資本損失，並維持員工生產力和經濟成長。

#### 方法

利用末期腎病 (ESKD) 和肺癌病人的真實世界數據，我們將他們的終身存活函數分別與就業比率和投保薪資相乘，以估算其終身就業年限和產值，並與按年齡、性別和年份匹配的參照組進行比較，據以估算終身就業年限和收入的差異。從 2000 年至 2017 年，83,358 名末期腎病病人的終身生產力損失比率約為 32-66%。相同方法，我們收集了 2011 年至 2018 年間的 24,904 例肺腺癌新增病例，並估算出早期檢測可能節省的人力資本損失。再而，基於臺灣末期腎病發病率的變化趨勢，我們計算了 2000 年至 2020 年間末期腎病病人在人力資本損失的國內生產總值 (GDP) 百分比。

#### 結果

末期腎病病人的終身生產力損失在 GDP 百分比中，男性病人約為 0.000398% 至 0.01%，女性病人則為 0.0001% 至 0.009%。病人年齡越小，人力資本損失佔 GDP 百分比越大。同樣地，肺腺癌的早期檢測在一定程度上挽救了生命和生產力。

#### 結論

在疾病早期成功預防重大疾病將有助於挽救勞動力的終身就業年限和生產力。未來健保改革可考慮加強公共衛生與醫療服務機構之間的合作，聚焦於疾病及併發症的有效預防，可以減少生產力的損失。

### 關鍵字

終身生產力、人力資本、終身就業年限、預防

## Appendix Abstracts

### 1. Reflection on 30 years of Taiwanese national health insurance: Analysis of Taiwanese health system progress, challenges, and opportunities

第一作者：Sian Hsiang-Te Tsuei 崔相德 (doi: 10.1016/j.jfma.2024.07.030)

通訊作者：Sian Hsiang-Te Tsuei 崔相德

#### Abstract

On the eve of Taiwan's National Health Insurance's 30th birthday, this study reviews the policy and performance trajectory of the Taiwanese health system. Taiwan has controlled their health spending well and grown increasingly reliant on private financing. The floating-point global budget payment preferentially rewards outpatient-based services, but this has not affected the hospital-centric market composition, which persists despite several primary-care friendly developments. The outcomes suggest improving health care workforce and resource availability, good patient-centredness, respectable technical efficiency, and impressive patient care satisfaction. However, there are worrisome trends for financial barriers to access and allocative efficiency. Evidence on clinical quality suggests that hospitals are performing well though the primary care setting might not be. Overall, the public remains satisfied despite signs of lagging improvement in health outcomes, worsening maternal mortality rate, and persistently incomplete financial risk protection. Identifying what drives the worsening financial barriers of access and persistent financial risk is necessary for further discussions on potential financing adjustments. Improving allocative efficiency could draw on a combination of supporting the functions and quality of primary care alongside patient-oriented education and incentives. Further data on causes of slow health status improvement and rebounding maternal mortality rate is necessary.

#### Keywords

Health system; Health policy; National health insurance; Universal health coverage; Taiwan

## **2. Loss of resilience in Taiwan's pediatric care system after the COVID-19 pandemic**

第一作者：Jien-Wen Chien 錢建文 (doi: 10.1016/j.jfma.2024.09.013)

通訊作者：Jien-Wen Chien 錢建文

### **Abstract**

During the COVID-19 pandemic, Taiwan's pediatric healthcare system faced its most severe shortage of pediatric residents in history. This review investigates the causes, consequences, and potential solutions to this shortage. Between 2020 and 2023, the recruitment rate of pediatric residents dropped by 27.3%, increasing workloads for attending pediatricians and may worsening health outcomes for pediatric patients. Compared to South Korea and Japan, Taiwan has the highest neonatal mortality rates and lowest life expectancy at birth. Additionally, Taiwan's National Health Insurance (NHI) pays pediatricians in hospitals half of what it pays those in local clinics, hindering the attraction of pediatric hospitalists. To sustain the pediatric healthcare system, the government could consider directly compensating pediatricians at clinic rates and transitioning to a capitation payment system. Systemic recommendations include increasing health expenditure as a percentage of gross domestic production (GDP) and amending the NHI Act to eliminate the global budget payment system. Managing the resulting increase in financial responsibility could involve raising tax revenue as a percentage of GDP. Implementing these measures could strengthen the pediatric healthcare system and prevent a collapse of pediatric inpatient care.

### **3. Exploring the challenges of Taiwanese nurses in the COVID-19 post-pandemic era**

第一作者：Zih-Yong Liao 廖咨詠 (doi: 10.1016/j.jfma.2024.03.020)

通訊作者：Lu-Yen Anny Chen 陳律言

#### **Abstract**

In the wake of the COVID-19 pandemic, the fluctuating nurse resignation rates highlighted an understudied area in healthcare: post-pandemic challenges in clinical settings. This study, conducted from May to November 2023, employed a qualitative inquiry using focus groups to delve into these challenges. Six focus group sessions, involving 33 nurse participants recruited through snowball sampling from various hospital settings were conducted to explore their clinical experiences during and after the pandemic. Thematic analysis revealed two primary themes: the 'Invisibility of Nurses' within the healthcare system and the 'Moral Duty of Nursing Practice'. These findings illuminate a tension between the overlooked role of nurses and their ethical obligations, underscoring a critical need for policy reassessment. The study advocates for systemic changes, particularly in the undervaluation of the nursing profession and the National Health Insurance system, to address the poor working environment and mitigate long-term nursing shortages. This research deepens understanding of post-pandemic nursing workforce challenges in Taiwan, highlighting the need for policy evolution to enhance recognition and support for the nursing industry. It is suggested to provide tangible compensation to acknowledge nurses' daily care and health education for patients. A healthier working environment can be enhanced by collaborative efforts between healthcare institutions and nurses.

## **4. Enhancing Taiwan's healthcare sustainability: A Delphi study on national medicines policy reforms**

第一作者：Chih-Fen Huang 黃織芬 (doi: 10.1016/j.jfma.2024.08.018)

通訊作者：Li-Jiuan Shen 沈麗娟

### **Abstract**

#### Background/purpose

The National Medicines Policy (NMP) is crucial as it sets the framework for ensuring access to affordable, high-quality medicines and promoting their rational use, which is essential for public health and the efficiency of the healthcare system. This study aims to evaluate the current state of Taiwan's NMP, identify pressing issues for improvement, and establish actionable suggestions through expert consensus to ensure the sustainable provision and use of medications.

#### Methods

A modified two-round Delphi technique was employed. The first-round survey identified key issues and suggestions for policy improvement, while the second-round survey evaluated the feasibility and effectiveness of these suggestions. The expert panel, consisting of 50 specialists from pharmacy, medicine, public health, and the pharmaceutical industry, evaluated key issues related to the NMP's efficacy using a 4-point Likert scale.

#### Results

The first-round survey identified 13 key issues in Taiwan's NMP, primarily focusing on the rational use and accessibility of medications. The second-round survey proposed 54 policy improvement suggestions for these issues, of which 20 were considered strong suggestions and 23 were moderate suggestions. The policy recommendations cover medication reimbursement, pharmacy professional services, administration, legislation, and education.

#### Conclusion

The study highlights the urgent need for reforms in Taiwan's NMP, providing specific policy improvement suggestions to ensure high-quality medications and pharmaceutical services while supporting the sustainable operation of Taiwan's NHI system. The study underscores the significance of proactive measures to fortify healthcare sustainability in the face of evolving healthcare landscapes.

### **Keywords**

Delphi technique; Healthcare sustainability; Policy improvement; Taiwan National health insurance; National medicines policy

## 5. Healthcare for all — A critical review of Taiwan’s national health insurance system through a social institution lens

第一作者：Chunhuei Chi 紀駿輝 (doi: 10.1016/j.jfma.2024.07.003)

通訊作者：Chunhuei Chi 紀駿輝

### Abstract

Since its 1995 implementation, Taiwan's National Health Insurance (NHI) system has made significant progress while also facing challenges. It receives both acclaim and critique in international comparisons, especially in the quality and outcomes of healthcare. The NHI system persistently enjoys a very high population satisfaction rate: often 70%–80%, and above 90% since 2020. Yet there is increasing dissatisfaction from providers, especially around low nurses' salaries, physicians' long working hours, and the slow inclusion of new pharmaceuticals among its covered drugs. During the 2023–2024 Presidential election campaign, NHI system reform was also a contentious agenda among candidates.

As debates on the future of Taiwan's NHI system continue, a resurfacing issue is the expansion of the private financing of Taiwan's healthcare system. Options under consideration include opening stand-alone private health insurance, expanding supplemental private health insurance, or increasing the private payment options. The same issue was hotly debated only three years after the implementation of the NHI system, with at least five legislative proposals in 1999.

Our motivation in this review is to critically examine these debates and consider the future of Taiwan's NHI system. We intend to add a new voice to this debate providing a different critical perspective by considering the NHI through the lens of social institutions. We will begin by introducing the ethical and normative assumptions of our analytical framework, followed by a discussion of the ecology of Taiwan's NHI system and its strengths, weaknesses, and future challenges. We conclude with proposals for how the system may be strengthened to achieve its goals.

This examination of Taiwan’s NHI system as a social institution through a social institution lens is grounded in ethical principles of human dignity, self-determination, and communitarian ethics. These guide us to frame the system’s goals as

- (1) promoting population health, with:
- (2) equitable access to healthcare;
- (3) equitable financial burden of healthcare;
- (4) equitable improvement of quality of healthcare;
- (5) open, inclusive, and democratic governance;
- (6) efficient and sustainable investment of resources; and
- (7) contributing to a better society.

We conclude our review by making system-wide recommendations in four areas:

- (1) governance,
- (2) finance,
- (3) health services delivery, and
- (4) resilience, sustainability, and social cement.

## **6. Quality and resilience of health care from a medical center perspective**

第一作者：Abel Po-Hao Huang 黃博浩 (doi: 10.1016/j.jfma.2024.09.014)

通訊作者：Ming-Shiang Wu 吳明賢

### **Abstract**

National Taiwan University Hospital (NTUH) has demonstrated exceptional resilience and adaptability in its response to the COVID-19 pandemic. Since the outbreak in early 2020, NTUH has been at the forefront of Taiwan's healthcare system, taking proactive measures to prepare for and manage the pandemic. The hospital swiftly established dedicated outpatient clinics and wards, which were crucial in isolating and treating COVID-19 patients. NTUH also played a pivotal role in assisting the government with the development of diagnostic reagents and vaccines and contributing to the global effort to combat the disease. To address the long-term effects of COVID-19, NTUH established a special clinic for integrated care in September 2021, offering physical, occupational, and speech therapy to help patients recover and return to normal life. NTUH also shared its pandemic prevention experience internationally, participating in video conferences to discuss its preventive measures and best practices. In caring for frontline healthcare workers, NTUH established interdisciplinary care teams to provide psychological support, assistance with basic daily needs, and effective social, psychological, and mental health support programs. In conclusion, NTUH demonstrated efficient response capabilities and care for healthcare workers during the COVID-19 pandemic, providing valuable insights for future challenges in dealing with emerging infectious diseases.

### **Keywords**

Coronavirus; Health care; Quality; Resilience

## **7. Strengthening resilience and patient safety in healthcare institutions during the COVID-19 pandemic: Experience from a quasi-medical center**

第一作者：Szu-Ying Chen 陳思穎 (doi: 10.1016/j.jfma.2024.09.035)

通訊作者：Shu-Ching Chi 紀淑靜

### **Abstract**

The COVID-19 global pandemic exposed healthcare system vulnerabilities, further endangering patient safety. This article explores perspectives on resilience and patient safety among healthcare workers using data from the Taiwan Patient Safety Culture Survey (TPSCS) and implementing Patient Safety Leadership Walkrounds (PSLWs) at E-Da Hospital. In 2021 and 2022, 1340 and 1114 staff members from clinical departments completed TPSCS questionnaires, respectively. 89 leaders from clinical departments participated in PSLWs in 2022. Among the four job categories, scores of Safety Attitude Questionnaire (SAQ) were lower among nurses and medical technicians, while perceptions of resilience and work-life balance were lowest among nurses. Between the two-year surveys, nurses exhibited significant decreases in SAQ in 2022 compared to 2021, while perceptions of work condition and work-life balance significantly declined among pharmacists. Resilience perception significantly decreased among all job categories except physicians during the pandemic. Mediation analyses showed teamwork climate, job satisfaction, management, work condition, and work-life balance were directly associated with safety climate, while resilience acts as a mediator, indirectly potentiating these relationships. Through PSLWs, we identified concerns about patient safety, including workforce, systems, processes, equipment, and work environment. Among these, workforce shortages and unsatisfactory pay emerged as the most pressing challenges. Strong leadership was recognized as a crucial factor in enhancing resilience and patient safety. This study suggests that TPSCS and PSLWs are worth regularly promoting among hospital institutions. Additionally, our findings highlight the urgency of healthcare organizations and governmental agencies to undertake policy reforms to improve healthcare workers' well-being.

### **Keywords**

Resilience; Patient safety; Leadership walk rounds; COVID-19; National health insurance

## **8. Taiwan's community health care evolution: Navigating pandemic challenges and shaping the future**

第一作者：Tsan-Yu Wu 吳璣宇 (doi: 10.1016/j.jfma.2024.08.009)

通訊作者：Shao-Yi Cheng 程劭儀

### **Abstract**

The COVID-19 pandemic has significantly shaped population dynamics and healthcare systems. Primary care clinics in Taiwan demonstrated remarkable resilience in managing the pandemic. This adaptability is reflected in rigorous screening processes, proactive vaccination efforts, and the seamless integration of telehealth services. Noteworthy shifts have been observed in the redistribution of primary care clinics and a decline in preventive healthcare measures. In response to these challenges, Taiwan has embraced a multifaceted approach, with telehealth services, home-based clinical care initiatives, community-based care, and innovative programs, like the Hospital at Home initiative, assuming central roles in mitigating the impact of the pandemic. These strategies underscore a forward-thinking healthcare delivery approach that prioritizes patient well-being.

Critical solutions include ongoing reforms in clinical practices, the contingency plans for preventive healthcare, the promotion of telehealth services, the adoption of home-based clinical care, and the enhancement of the integration of practice. Taiwan's visionary initiatives, including digital intelligent healthcare approaches, serve as a robust foundation for building a resilient and patient-centered healthcare system. These concerted efforts and healthcare innovations are necessary for shaping a comprehensive, accessible, and responsive future. Taiwan is setting a noteworthy example for global healthcare systems to follow by prioritizing the well-being of the population.

### **Keywords**

COVID-19; Home based clinical care; Primary care; Preventive healthcare; Telehealth

## **9. Home-based advanced care is a solution to quality health care in rural Taiwan: Lessons learned during the COVID-19 pandemic**

第一作者：Sang-Ju Yu 余尚儒 (doi: 10.1016/j.jfma.2024.08.010)

通訊作者：Jung-Yu Liao 廖容瑜

### **Abstract**

#### Background/purpose

The integrated home-based medical care (iHBMC) program has been implemented by the Taiwanese government since 2016. The pandemic of coronavirus disease 2019 (COVID-19) accelerated the shift from hospital-based to community-based healthcare, with a special focus on advanced home care for frail older adults. This study focuses on home-based advanced care, such as hospital at home (HaH), aiming to explore the feasibility and resilience of HaH within a home-based medical care model in a rural community in Taiwan.

#### Methods

We conducted a retrospective review of medical records from February 2020 to August 2022. Two clinical professionals reviewed and abstracted data from the electronic medical records of 189 patients receiving home healthcare during the COVID-19 pandemic. The HaH event was calculated if patients had any acute infection and received treatment at home.

#### Results

A total of 62 HaH events occurred during 2020-2022 and the average HaH events per person was 1.4. In these events, the top reason for patients receiving HaH was pneumonia, followed by urinary tract infection, soft tissue infection, and sepsis. 77.4% of patients completed the HaH treatment and did not experience any recurrent acute infections in the 30-day follow-up.

#### Conclusion

Different forms of home healthcare enhance the resilience of medical care provision in rural areas. As Taiwan approaches a hyper-aged society by 2025, it is crucial that National Health Insurance policies support various home-based care models that address transportation issues and maintain high care standards in underserved rural areas.

### **Keywords**

COVID-19; Hospital at home; Rural area

## **10. Estimating Taiwan's QALY league table for catastrophic illnesses: Providing real-world evidence to integrate prevention with treatment for resources allocation**

第一作者：Jung-Der Wang 王榮德 (doi: 10.1016/j.jfma.2024.05.011)

通訊作者：Jung-Der Wang 王榮德

### **Abstract**

#### Background/purpose

Curative technologies improve patient's survival and/or quality of life but increase financial burdens. Effective prevention benefits all three. We summarize estimation methods and provide examples of how much money is spent per quality-adjusted life year (QALY) or life year (LY) on treating a catastrophic illness under a lifetime horizon and how many QALYs/LYs and lifetime medical costs (LMC) could be potentially saved by prevention.

#### Methods

We established cohorts by interlinkages of Taiwan's nation-wide databases including National Health Insurance. We developed methods to estimate lifetime survival functions, which were multiplied with the medical costs and/or quality of life and summed up to estimate LMC, quality-adjusted life expectancy (QALE) and lifetime average cost per QALY/LY for catastrophic illnesses. By comparing with the age-, sex-, and calendar year-matched referents simulated from vital statistics, we obtained the loss-of-QALE and loss-of-life expectancy (LE).

#### Results

The lifetime cost-effectiveness ratios of ventilator-dependent comatose patients, dialysis, spinal cord injury, major trauma, and cancers were US\$ 96,800, 16,200–20,000, 5500–5,900, 3400–3,600, and 2900–11,900 per QALY or LY, respectively. The successful prevention of lung, liver, oral, esophagus, stomach, nasopharynx, or ovary cancer would potentially save US\$ 28,000–97,000 and > 10 QALYs; whereas those for end-stage kidney disease, stroke, spinal injury, or major trauma would be US\$ 55,000–300,000 and 10–14 QALYs. Loss-of-QALE and loss-of-LE were less confounded indicators for comparing the lifetime health benefits of different technologies estimated from real-world data.

#### Conclusions

Integration of prevention with treatment for resources allocation seems feasible and would improve equity and efficiency.

### **Keywords**

Prevention; Health technology assessment; Lifetime medical cost; Quality of life; Generalized cost-effectiveness analysis

## **11. Enhancing Traditional Chinese Medicine healthcare system in Taiwan post-COVID-19 pandemic: A strategic focus on specialization**

第一作者：Shun-Ku Lin 林舜毅 (doi: 10.1016/j.jfma.2024.09.012)

通訊作者：Jung-Nien Lai 賴榮年

### **Abstract**

Despite the advancements in precision medicine, regenerative medicine, and smart healthcare, traditional Chinese medicine (TCM) remains vital in Taiwan, reflecting its cultural and historical heritage. TCM is commonly used in conjunction with or as an alternative to conventional medicine and is reimbursed by Taiwan's National Health Insurance, enabling the Taiwanese people to integrate traditional and modern treatments for comprehensive healthcare. This article explores the critical role of specialization in TCM amid evolving healthcare challenges. This highlights the need for specialized knowledge among TCM physicians to manage iatrogenic risks, such as drug-herb interactions, and to improve healthcare outcomes, particularly when integrating TCM with Western medicine. Specialization enhances treatment precision, patient outcomes, and clinical research quality. Drawing on South Korea's experience in establishing a specialist physician system for traditional Korean medicine, Taiwan's Ministry of Health and Welfare's initiatives to advance systematic TCM training and regulatory frameworks were examined, showcasing the development and implementation of a TCM specialist physician training program. In conclusion, specialized physician training in TCM improves patient care, optimizes healthcare utilization, and promotes long-term sustainability of the health insurance system by aligning TCM practices with modern healthcare needs.

### **Keywords**

Health insurance system; Healthcare integration; Iatrogenic risks; Specialization; Traditional Chinese Medicine

## **12. Challenges and resilience of Taiwan's oral health care system after Covid-19 pandemic**

第一作者：Ting-Chen Chen 成庭甄 (doi: 10.1016/j.jfma.2024.09.039)

通訊作者：Wender Lin 林文德

### **Abstract**

This paper examines the resilience of Taiwan's oral healthcare system in response to COVID-19, focusing on pre-pandemic conditions, pandemic impacts, and policy recommendations for future resilience. In Taiwan, oral diseases were prevalent, with 80.48% of adults affected by periodontitis in 2016, and 65.43% of 5-year-old children experiencing dental caries. Taiwan's National Health Insurance (NHI) covers over 99% of the population, providing comprehensive dental care. The global budget (GB) payment system, implemented in 1998, ensured financial stability. During the pandemic, dental visits in Taiwan decreased by 5.1% in 2021 compared to 2019. Despite reduced visits, the GB system maintained financial stability, mitigating financial impacts on healthcare institutions. The pandemic generally negatively affected healthcare workers' well-being, increasing resignation intentions. However, the number of practicing dentists in Taiwan remained stable from 2016 to 2022, with slight increases. Urban-rural disparities persisted, and workplace transitions increased, indicating greater mobility among dental professionals. To enhance resilience, the following recommendations are proposed: 1. Strengthen hierarchy of oral healthcare system: Balance dental resources across regions, and improve referrals between hospital and clinics; 2. Provide integrated patient-centered care: Integrate oral health into disease prevention and offer comprehensive services across all stages of life; 3. Integrate digital technology: Promote teledentistry and leverage Taiwan's strengths in information and communication technology (ICT).

### **Keywords**

COVID-19; Dental workforce; Oral healthcare system

### **13. Pharmaceutical procurement profits and universal health coverage: Reform to a sustainable healthcare and financing system**

第一作者：Weng-Foung Huang 黃文鴻 (doi: 10.1016/j.jfma.2024.10.003)

通訊作者：Li-Jiuan Shen 沈麗娟, Yi-Wen Tsai 蔡憶文

#### **Abstract**

##### Background

In this study, using Taiwan's National Health Insurance (NHI) as an example of a single-payer system, we examined the extent of pharmaceutical procurement profits (PPP) and evaluated their impact on the financial performance of healthcare institutions.

##### Methods

We extracted data from financial statements and healthcare service declarations of NHI-contracted hospitals from 2015 to 2021. Financial data concerning PPP, health service profits (HSP), and total operating profits (TOP) from each hospital were analyzed. The impact of PPP on hospitals with positive and negative HSP was further investigated.

##### Results

The total PPP across all hospitals studied gradually increased from NT\$30.6 billion in 2015 to NT\$47.0 billion in 2021. In 2021, 28.1% of all hospitals reported a deficit in HSP. PPP appeared to have a significantly positive impact on the financial performance of these hospitals. It not only enhanced positive profits, but also helped mitigate or completely offset the negative profits from HSP. The effect of PPP seems to be more pronounced for hospitals with larger HSP values, suggesting that larger hospitals benefit more from PPP in absolute terms.

##### Discussion

Average PPP increased during the study period, increasingly affecting hospitals' financial stability across all strata. The gap between TOP and HSP in medical centers has gradually widened, suggesting an increase in non-health service profits. In this study, we propose a payment policy reform that fosters sustainability of the healthcare and financing system under universal health coverage and corrects the potential distortions caused by PPP.

#### **Keywords**

Pharmaceutical procurement profits; Universal health coverage; Financial sustainability; Health service profits; Pharmaceutical rebates

## **14. Effective prevention in clinical practice may save human capital loss: Real-world evidence from Taiwan's National Health Insurance**

第一作者：Fuhmei Wang 王富美 (doi: 10.1016/j.jfma.2024.10.011)

通訊作者：Jung-Der Wang 王榮德

### **Abstract**

#### Background/Purpose

Effective prevention could protect the health of the workforce, save human capital loss, and maintain employee productivity as well as economic growth.

#### Methods

Using real-world data of patients with end-stage kidney disease (ESKD) and lung cancer, we multiplied their lifetime survival functions with employment ratios and working salaries to estimate the lifetime employment durations and earnings. They were compared with corresponding age-, sex-, and calendar year-matched referents to assess the differences in loss of lifetime employment duration and earnings. From 2000 to 2017, 83,358 patients with end-stage kidney disease (ESKD) were associated with 32–66% lifetime productivity losses. Similarly, we collected 24,904 incident cases of lung adenocarcinoma during 2011–2018 and estimated the potential savings in human capital due to early detection. Based on the evolving trends of ESKD incidence rates in Taiwan, we calculated the lifetime human capital losses of ESKD patients in GDP (gross domestic product) percentages during 2000–2020.

#### Results

The aggregate lifetime productivity losses of ESKD in terms of GDP% varied between 0.000398% and 0.01% for male patients and between 0.0001% and 0.009% for female patients. The younger the patients, the bigger the losses in GDP%. Similarly, early detection of lung adenocarcinoma saved lives and productivity to some extent.

#### Conclusions

Successful prevention of catastrophic illnesses at early stages would save the lifetime employment duration and productivity of the workforce. Future reform on the NHI could consider closer coordination between public health and healthcare organizations, focusing on effective prevention of diseases and complications to save productivity loss.

### **Keywords**

Lifetime productivity; Human capital; Lifetime employment duration; Prevention

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## Editorial

## Challenges and resilience of Taiwan's health care system after Covid-19 pandemic



Taiwan's National Health Insurance (NHI) is a government-run, single-payer system that was first launched on March 1, 1995, with a significant revision, known as the second-generation NHI, implemented on January 1, 2013. This system provides comprehensive healthcare services to both Taiwanese citizens and foreign residents, covering outpatient visits, inpatient care, dental services, traditional Chinese medicine, renal dialysis, and prescription drugs. The annual expenditure for NHI increased from NT\$156.8 billion in 1995 to NT\$749.8 billion in 2022, accumulating a total expenditure of NT\$12,335.3 billion over the years, accumulating about NT\$104 billion surplus in 2022 (Table 1) [1, 2]. Compulsory health insurance as a percentage of current health expenditure (CHE) for Taiwan was at 47.7% in 2022, lower than Japan's 77% and close to South Korea's 46% [2]. With each change of the Central Governments since 1995, we have observed a 1.3- to 1.5-fold increase in NHI expenditure compared to the previous administration. Despite these rising costs, the accumulated surplus indicates that NHI income has remained enough to cover its expenses thus far, aided by supplementary premiums and rate increases to maintain a balanced budget.

CHE, an indicator of how much a country spends on healthcare care goods and services, can provide more complete cost of health care in addition to NHI expenditure. The annual CHE increased from NT\$348.2 billion in 1995 to NT\$1581.1 billion in 2022, which is about US\$53 billion. Similar to NHI expenditure, CHE also increase 1.3- to 1.6-fold with each change of Central Governments compared to the previous administration. But Taiwan's CHE is significantly lower than the Organization for Economic Co-operation and Development's (OECD) average of about US\$204 billion, Japan's US\$487 billion, and South Korea's US\$162 billion in 2022 [2]. For CHE per capita, Taiwan's US\$2274 is much lower than OECD's average of US\$4,986, Japan's US\$5,251, and South Korea's US\$4570 in 2022. The percentage of CHE per gross domestic product (GDP) reflects resources countries allocate for healthcare relative to their economy sizes. Taiwan's 6.97% is lower than OECD average of 9.2%, Japan's 11.5%, and South Korea's 9.7% in 2022 [2,3]. These comparisons indicate the overall health expenditure in Taiwan is lower than the average of developed economies.

Since the launch of the NHI, the number of physicians in Taiwan has increased from 24,462 (1.1 per 1000 population) in 1995 to 54,014 (2.2 per 1000 population) in 2022. Meanwhile, the number of registered professional nurses has risen from 27,038 (1.3 per 1000 population) to 140,514 (6.0 per 1000 population) over the same period [4]. However, both figures remain below the OECD average in 2021, which stood at 3.7 for physicians and 9.2 for nurses. In comparison, Japan and Korea each had 2.6 practicing physicians per 1000 population, with nurse ratios of 12.1 and 8.8, respectively [3]. From a healthcare financing and

workforce perspective, the NHI has effectively become Taiwan's primary healthcare system, successfully delivering accessible and comprehensive medical services through its universal health coverage model, supported largely by a robust network of private providers. The number of medical centers in Taiwan has expanded from 9 in 1995 to 21 in 2022, with the addition of 12 privately-owned medical centers. The geographic distribution of medical centers, with half concentrated in Taipei City and New Taipei City, remains unevenly situated across Taiwan. The inequity problem of access to tertiary care institutions for insures living in rural and remote areas has not been improved by each change of the Central Governments since 1995. By 2022, private medical centers housed 20,557 beds, and 11,998 privately operated clinics employed 18,867 physicians, ensuring high accessibility under the NHI system (Table 2) [4]. The stability of this privatized healthcare structure, largely unaffected by government changes, has bolstered the accessibility of medical services and reflects the increasing influence of primary care physicians.

However, prior to the Covid-19 pandemic, Taiwan's NHI had not fully addressed several key challenges, including non-communicable diseases (NCDs), quality of care, shortages of doctors and nurses, transparency, governance, and low national investments in healthcare. Although the standardized cancer mortality rate in Taiwan decreased from 136.4 per 100,000 in 1995 to 118.2 per 100,000 in 2021, this improvement lag Japan and Korea, the two other nations with national health insurance systems. During the same period, Japan saw its cancer mortality rate drop from 127.4 to 88.7 per 100,000, while Korea's rate fell dramatically from 137.2 to 79.9 per 100,000 [5]. The reduction in Taiwan's cardiovascular disease mortality rate was similarly modest, declining from 62.2 per 100,000 in 1996 to 46.8 per 100,000 in 2023 [5]. While life expectancy in Taiwan increased from 74.5 years in 1995 to 79.84 years in 2022 under the NHI system, the pace of this improvement also fall behind Japan and Korea, and is still lower than OECD average. By 2023, life expectancy in both Japan and Korea had surpassed Taiwan, standing at 84.5 and 83.6, respectively, while the average across 38 OECD countries is 80.3 [3].

The ongoing Covid-19 pandemic is one of the greatest global tragedies of our time, profoundly impacting the world and individuals alike. Since 2020, Taiwan has recorded over 10 million Covid-19 cases and 25,440 deaths (Fig. 1) [6], far surpassing the annual fatalities of influenza, which, unlike Covid-19, has never exceeded 1000 deaths in any given year before, during, or after the pandemic. Covid-19 quickly became one of the leading causes of death in Taiwan, ranking 19th in 2021, third in 2022, and 6th in 2023, contributing significantly to the nation's overall mortality burden [7]. After years of steady gains, life expectancy in Taiwan dropped for two consecutive years—from 81.32 in

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**Table 1**

Taiwan health financing status for each presidential term since national health insurance launch in 1995 [1,2].

| (Billion NTD)                      | 1995  | 2000   | 2008   | 2016   | 2022     |
|------------------------------------|-------|--------|--------|--------|----------|
| <b>NHI income</b>                  | 194.0 | 285.2  | 402.0  | 575.3  | 760.2    |
| <b>Accumulated NHI income</b>      | 194.0 | 1489.5 | 4304.6 | 8521.3 | 12,439.7 |
| <b>NHI expenditure</b>             | 156.8 | 284.2  | 415.9  | 568.4  | 749.8    |
| <b>Accumulated NHI expenditure</b> | 156.8 | 1449.4 | 4330.9 | 8273.5 | 12,335.3 |
| <b>NHI surplus</b>                 | 37.1  | 1.0    | -14.0  | 7.0    | 10.3     |
| <b>Accumulated NHI surplus</b>     | 37.1  | 40.0   | -26.5  | 247.4  | 104.0    |
| <b>CHE</b>                         | 348.2 | 513.4  | 833.9  | 1118.9 | 1581.1   |

NHI: National Health Insurance; CHE: Current Health Expenditure.

**Table 2**

Number of Taiwan medical centers and Western medicine clinics for each presidential term since NHI launch in 1995 [4].

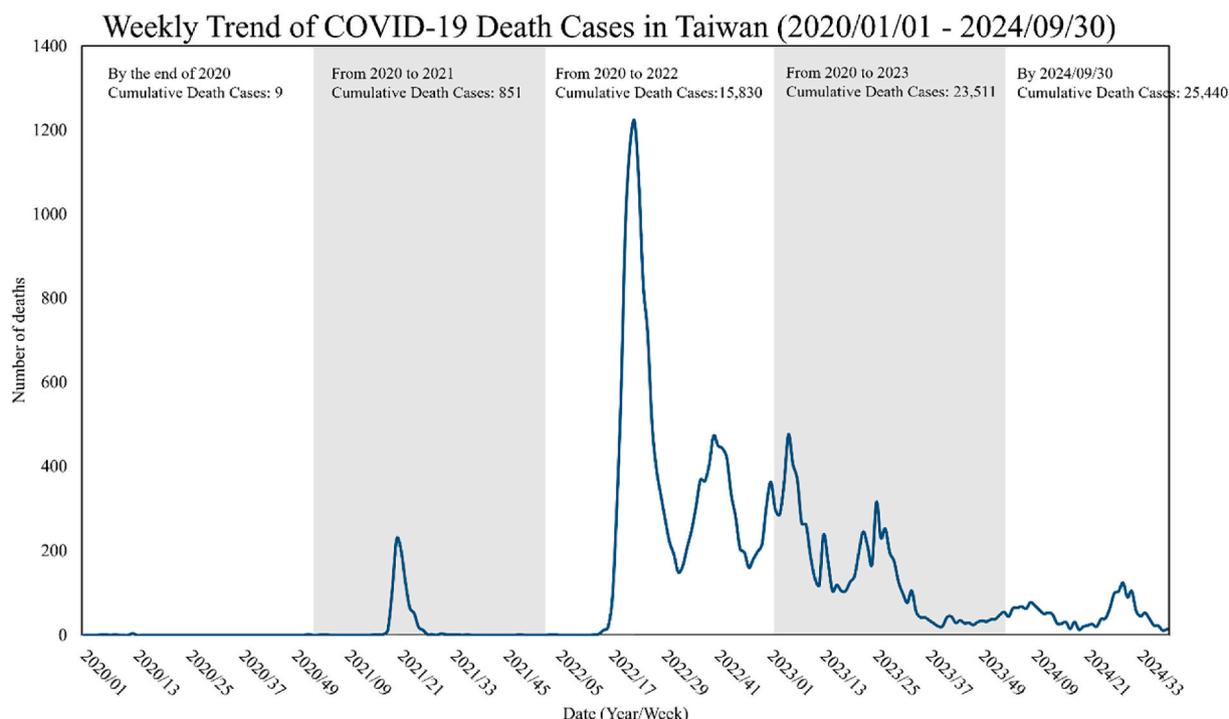
|  | 1995   | 2000   | 2008   | 2016   | 2022   |
|--|--------|--------|--------|--------|--------|
| <b>Number of Medical Centers</b>                                 | 9      | 20     | 17     | 22     | 21     |
| Number of Public Medical Centers                                 | 6      | 7      | 3      | 6      | 6      |
| Number of Non-Public Medical Centers                             | 3      | 13     | 14     | 16     | 15     |
| <b>Number of hospital beds in Medical Centers</b>                | 14,121 | 23,359 | 22,565 | 32,055 | 32,334 |
| Number of hospital beds in Public Medical Centers                | -      | -      | 4403   | 11,526 | 11,777 |
| Number of hospital beds in Non-Public Medical Centers            | -      | -      | 18,162 | 20,529 | 20,557 |
| <b>Number of western medicine Clinics</b>                        | 8680   | 9402   | 10,326 | 11,395 | 11,998 |
| <b>Numbers of physicians working in western medicine clinics</b> | 9557   | 10,963 | 13,737 | 16,688 | 18,867 |

2020 to 80.86 in 2021, and further to 79.84 in 2022 [8]. This decline was largely due to the high morbidity and mortality among the elderly and individuals with comorbidities, such as NCDs. The summer surge of 2022 in Taiwan persisted, with weekly Covid-19 deaths revealing the

healthcare system’s struggle in managing the seasonality of the virus and the transition from acute outbreak to persistent circulation. The pandemic has exacerbated long-standing issues within Taiwan’s NHI system and the broader healthcare framework. Taiwan’s experience with Covid-19 underscores the urgent need for a more resilient health system, one that is capable of better controlling disease spread and saving lives in future pandemics. Additionally, other looming challenges—such as population aging, low birth rates, the climate crisis, and the rapid evolution of digital healthcare—are intensifying the pressure on Taiwan’s healthcare system, making the reform of NHI an urgent public health priority.

Historically, the launch of Taiwan’s NHI in 1995 was strategically timed before the country’s first democratic presidential election in 1996. In every election since then, over the past 30 years, patchwork remedies for the NHI have consistently been on the political agenda. These reforms have primarily focused on expanding medication coverage, adding new diagnoses and treatments, increasing the global budget, improving compensation for physicians and nurses, expanding privately-owned medical centers, and implementing co-payments and out-of-pocket expenses. The 2024 presidential election marked the first time that two of the three candidates were physicians, both of whom campaigned for increasing health expenditure to 8% of the gross domestic product, bringing healthcare reform to the forefront of the policy debate. Following the election, NHI reform remained a key issue in the Legislative Yuan, where no single party held a majority but, all parties agreed that NHI’s point value should more accurately reflect the true cost of medical services. A legislative resolution has been passed in July 2024 to require the Executive Yuan to realize of reaching an average of NT\$0.95 per NHI’s point by June 30, 2025.

In September, Taiwan’s Ministry of Health and Welfare (MOHW) announced that NHI global budget for 2025 will be NT\$911–929 billion, around US\$28 billion [4]. The MOHW’s new global budget will not achieve NT\$0.95 per NHI’s point, the goal adopted by the legislative resolution in July 2024. This new global budget is projected to be only about 3.5% of the forecasted 2025 GDP [5]. The financial gap to reach CHE at 8% of GDP—approximately NT\$2116 billion—is even larger and require consideration of funding sources beyond the NHI. This shortfall



**Fig. 1.** Weekly trend of Covid-19 deaths in Taiwan.

in NHI finance and CHE will inevitably continue to impact on the imbalance between supply and demand of medical manpower, and affect health care quality in Taiwan. We can expect that political leaders, medical professionals, patient groups, public health experts, trade unions, and industry representatives continue to urge the Executive Yuan to commit more financial investment to improve the sustainability and quality of care for NHI.

In March 2024, the Partnership for Health System Sustainability and Resilience (PHSSR), an international private-public collaboration aimed at strengthening healthcare systems and improving global population health, published a report titled “Sustainability and Resilience in the Taiwanese Health System.” [9] This report was produced by the Center for Asia-Pacific Resilience and Innovation (CAPRI), a Taipei-based nongovernmental, nonpartisan organization dedicated to enhancing global resilience and promoting innovative governance. The timely publication of this report has helped foster social dialogue and policy discussions on Taiwan’s health system reform since the report has been launched. In August 2024, a cross-disciplinary expert meeting was convened by the Taiwan Alliance of Patients’ Organizations and Global View Magazine, bringing together legislators from all three political parties, the Minister of Health and Welfare, the Director of the National Health Insurance Agency, scholars, healthcare providers, and patient advocacy groups. The meeting addressed the financial and population health challenges facing Taiwan’s healthcare system. This first-ever whole-society discussion on health system reform resulted in three key consensus: (1) the need to establish a joint financial responsibility system, (2) the importance of identifying ways to expand revenue sources, and (3) ensuring the long-term sustainability and resilience of the healthcare system [10]. The attending participants emphasized that inaccurate, incomplete, and non-transparent healthcare expenditure data currently obstructs healthcare practitioners, experts, and policymakers from accurately assessing healthcare needs and making informed decisions. Specifically, to achieve a joint financial responsibility system for a sustainable and resilient NHI requires greater transparency in both income and expenditure data. A more comprehensive and robust healthcare system needs more financial support from governmental budgets, which could expedite the adoption of new treatment technologies and advanced cancer drugs for the ageing population, and prepare for the super-aged population in the coming decades. Moreover, improved transparency regarding the financial status of medical institutions can lead to more informed cross-sector discussions on the actual costs of services provided by physicians, nurses, pharmacists, and paramedics. Appropriate disclosure of the cost-benefit details of individual medical practices can better convince the public of the need for premium increases and encourage both government and the private sector to bear a greater share of the financial burden. Aligning NHI payments with international treatment guidelines would also ensure that patients receive effective, up-to-date treatments, while maintaining Taiwan’s international competitiveness in clinical practice and medical innovation.

Achieving these reforms hinges on the development of a new governance framework for NHI, one that is grounded in science, evidence, and societal solidarity. It is crucial to involve health experts and academic medical organizations in the dialogue on healthcare system reform. The governance of NHI can be strengthened by incorporating impartial, evidence-based health advices from experts into its decision-making processes. The Taiwan Medical Association, the country’s longest-standing medical organization, founded in 1912, is well-positioned to take a leading role in these critical conversations. In commemoration of the NHI’s 30th anniversary, we have commissioned this special edition featuring 14 articles written from a practitioner’s perspective. We invited authors equipped with both clinical experience and academic training in their areas of expertise to contribute papers on NHI reforms. These articles offer a comprehensive view of Taiwan’s healthcare system, both present and future, by combining both theoretical foundations and practical applications.

These 14 articles are organized into four clusters. The first cluster addresses the NHI’s current key issues and the challenges it is likely to face in the foreseeable future. In “Reflection on 30 years of Taiwanese National Health Insurance: Analysis of Taiwanese health system progress, challenges, and opportunities,” Tsuei used the World Health Organization’s building blocks framework to analyze fundamental issues facing the NHI [11]. It is followed by three papers focused on manpower issues of physicians, nurses and pharmacists: “Loss of resilience in Taiwan’s pediatric care system after the COVID-19 pandemic” by Chien et al. [12], “Exploring the Challenges of Taiwanese Nurses in the COVID-19 Post-Pandemic Era” by Liao et al., and “Enhancing Taiwan’s Healthcare Sustainability: A Delphi Study on National Medicines Policy Reforms” by Huang et al. [13].

The second cluster explores the challenges encountered by different levels of healthcare institutions. It opens with a philosophical viewpoint of “Healthcare for All – A Critical Review of Taiwan’s National Health Insurance System from a Social Institution Lens” by Chi et al. [14], followed by empirical studies covering a range of institutions. These include medical center: “Quality and resilience of health care from a medical center perspective” by Huang et al. [15], a quasi-medical center: “Strengthening Resilience and Patient Safety in Healthcare Institutions during the COVID-19 pandemic: Experience from a Quasi-Medical Center” by Chen et al. [16], community healthcare institutions: “Taiwan’s Community Health Care Evolution: Navigating Pandemic Challenges and Shaping the Future” by Wu et al. [17], and “Home-based advanced care is a solution to quality health care in rural Taiwan: Lessons learned during the COVID-19 pandemic” by Yu et al. [18] This cluster concludes with the paper “Estimating Taiwan’s QALY league table and benefits of prevention for catastrophic illnesses from real world data: methods and empirical examples”, by Wang et al. [19].

The third cluster provides a special coverage of Taiwan’s NHI, including papers on Traditional Chinese Medicine and dentistry. “Enhancing Traditional Chinese Medicine Healthcare System in Taiwan Post-COVID-19 Pandemic: A Strategic Focus on Specialization” by Lin and Lai [20], and “Challenges and Resilience of Taiwan’s Oral Health Care System after Covid-19 Pandemic” by Chen et al. [21].

Finally, the fourth cluster presents empirical research on improving the quality-of-care within the NHI. Included are “Pharmaceutical Procurement Profits and Universal Health Coverage: Reform to a Sustainable Healthcare and Financing System” by Huang et al. [22], and “Effective prevention in clinical practice may save human capital loss: Real-world evidence from Taiwan’s National Health Insurance” by Wang et al.

After reading these articles, I am grateful for the benefits of medical care that NHI has brought to Taiwanese society. At the same time, I also feel a sense of urgency for significant reforms, as evidenced by long-standing issues present since the NHI’s inception, and the impacts magnified by the Covid-19 pandemic, are clearly highlighted in these papers. I hope this special edition from The Taiwan Medical Association can provide you with useful information and valuable insights on the current NHI issues we are facing. I also hope that this special issue inspires you to actively participate in the democratic process of reforming our NHI and contribute to the ongoing dialogue on NHI reform in a scientific, professional, and rational manner.

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