出國報告(出國類別：開會)

ISQua 2025 國際健康照護品質協會會議
2025 Conference of the International Society for Quality in Health Care (ISQua)

服務機關：國防醫學大學三軍總醫院
姓名職稱：李思潔上尉
派赴國家/地區：巴西/聖保羅
出國期間：114 年 10 月 10 日至 10 月 17 日
報告日期：114 年 11 月 5 日

摘要

國際健康照護品質協會（International Society for Quality in Health Care, ISQua）成立於 1984 年，為國際上最具影響力的健康照護品質學術團體之一。該組織每年皆舉辦年會，邀集全球醫療領袖與專家學者，分享近年重要衛生議題、品質改善經驗與未來趨勢，為全球健康照護界的重要盛會。

2025 年第 41 屆年會於 114 年 10 月 12 日至 15 日假巴西聖保羅市世界貿易中心（World Trade Center São Paulo）盛大舉行，主題為「Inclusive Health Systems: Navigating Challenges with Technology and Humanity」，聚焦於人工智慧於醫療中的應用、品質治理創新、氣候變遷與永續醫療、以及以人為本的照護發展等議題。

本屆會議吸引全球 80 餘國、逾 1,100 位醫療專業人士與會，國防部軍醫局蔡建松局長與三軍總醫院陳元皓院長親自率隊出席，並與臺灣醫療品質協會共同主辦首屆「ISQua 臺灣之夜（ISQua Taiwan Night）」，展現我國醫療品質與病人安全推動成果，促進國際交流與醫療外交，廣獲與會者肯定。

本院為符合醫學中心任務指標基準任務三：卓越的醫療品質與病人安全，基準 3.2.3 展現符合國際趨勢的卓越醫療品質與病人安全成果，由軍醫局局長及陳院長共同指導帶領三總團隊參與學習，展現本院對醫療照護品質的堅持與追求肯定，以期與國際接軌並持續追求卓越。

關鍵詞：醫療品質、病人安全、醫學中心任務

目次

目的：

參加國際健康照護品質協會(ISQua)的年會有多個目的，包括：

1.掌握醫療品質及病人安全之全球發展議題與策略脈絡

年會議程涵蓋健康公平、病人安全、ESG、病人參與/賦能、外部認證等 8 大範疇，並討論、分享各國民眾健康議題及新興的挑戰，提供策略性視角以因應未來國際趨勢與政策改革方向，其中部分議題藉由小組討論形式，讓全體參與者共同腦力激盪及集思廣益，從做中了解議題的重要性及策略擬定的思維邏輯。

2.了解國際醫療數據整合與 AI 應用

本次會議特別聚焦於如何在全球範圍內推動醫療數據的整合，以及 AI 在醫療中的應用，這些是當前國際醫療領域的重要發展趨勢；希望借鑑國際上的成功經驗，尤其是日本和歐洲的一些實務應用，來指導國軍醫療體系在數位轉型、資料管理與病人安全上的進展。

3.學習國際病人安全文化及其管理模式

病人安全是專業領域的核心議題，本次年會對病人安全文化的探討非常深入，涵蓋了從「事件管理」到「文化養成」的轉變；供醫療機構思考如何在所處的職場推動病人安全文化的落地與深化。

4.拓展國際視野，建立全球合作夥伴關係

參加這樣的國際年會，重要的是能與來自世界各地的專家學者建立聯繫，拓展合作機會。通過與彼此間的交流，以提升自己的學術涵養，並為未來的國際合作打下基礎，進一步提升本院在全球醫療品質領域的影響力。

5.落實醫學中心角色及責任，引領國軍醫療體系品質改善及國際交流

輔導國軍高雄總醫院、國軍臺中總醫院暨中清分院、國軍左營總醫院參與國際品質改善活動，並共同組團參與國際醫療品質暨病人安全學術交流與互動，另與臺灣醫療品質協會共同主辦 ISQua 2025 首屆 Taiwan night，邀請我國醫策會及各院醫療品質暨病人安全同好與 ISQua 高層幹部、國際學者及駐聖保羅台北經濟及文化辦事處、當地醫療機構專家等進行面對面深度交流及經驗分享。

過程：

為因應上述目的，本次團隊於出國前完成各項任務編組，負責事項如下：

項次	單位	職稱	姓名	任務
1	軍醫局	局長	蔡建松	1.擔任領隊 2.參加年會各項研討會。
2	院本部	院長	陳元皓	1.擔任副領隊。 2.綜管本院與國內醫療機構及大會專家交流事宜。 3.參加年會各項研討會。
3	院本部	秘書	李慧娟	1.綜理長官行程及聯絡事宜。 2.參加年會各項研討會。
4	院本部	參謀	吳文冬	1.綜理長官行程及聯絡事宜。 2.參加年會各項研討會。
5	品質管理中心	主任	陳思州	1.督導全般出國行程。 2.海報發表者。 3.參加年會各項研討會。
6	品質管理中心	副主任	陳昱安	1.綜辦全般出國行程。 2.海報發表者。 3.參加年會各項研討會。
7	品質管理中心	醫品師	李思潔	1.辦理出國行程前置行政作業。 2.海報發表者。 3.參加年會各項研討會。
8	企管部企劃室	主任	劉明威	1.擔任傳譯及國外機構聯絡。 2.參加年會各項研討會。
9	臨床藥學部	藥師	黃子耀	1.口頭發表作者。 2.參加年會各項研討會。
10	皮膚科部	主任	洪誌聰	1.海報發表者。 2.參加年會各項研討會。
11	擬真中心	副主任	徐永吉	1.海報發表者。 2.參加年會各項研討會。
12	麻醉部	護理師	李季樺	1.海報發表者。 2.參加年會各項研討會。
13	營養部	營養師	王韻婷	1.海報發表者。 2.參加年會各項研討會。
14	復健部	物理治療師	黎桂珍	1.海報發表者。 2.參加年會各項研討會。
15	國軍臺中總醫院	院長	郭嘉文	1.督導國軍臺中總醫院出國發表任務。 2.參加年會各項研討會。

項次	單位	職稱	姓名	任務
	中清分院			
16	國軍臺中總醫院	護理官	洪念慈	1.海報發表者。 2.參加年會各項研討會。
17	國軍左營總醫院	副院長	許聖德	1.督導國軍左營總醫院出國發表任務。 2.參加年會各項研討會。
18	國軍左營總醫院	專員	黃麗娟	1.Lightning talk 發表者。 2.參加年會各項研討會。
19	國軍高雄總醫院	主任	李柏群	1.督導國軍高雄總醫院出國發表任務。 2.Lightning talk 發表者。 3.參加年會各項研討會。

訪團於 114 年 10 月 10 日由桃園國際機場搭機啟程，經杜拜轉機後，於 10 月 11 日抵達巴西聖保羅，10 月 12 日至 10 月 15 日參加 ISQua 年會活動，16 日凌晨啟程返臺，續於 17 日返抵臺灣，全程共計 8 日。

2025 年 ISQua 國際醫療品質年會於 10 月 12 日至 15 日於巴西聖保羅世界貿易中心舉行，主題為「包容性的健康體系：以科技與人性共創未來」。會議涵蓋病人安全、品質改進、共創以病人為中心的照護、整合式健康社區、人工智慧與數位轉型、醫療人力與治理、外部評鑑，以及氣候變遷與永續醫療等八大主題**(議程詳如附錄 1)**，本屆首次透過超過 30 種語言的即時翻譯，與來自全球的專家將共同探討創新與公平兼具的健康照護發展。

在軍醫局蔡建松局長全力支持及鼓勵下，國軍醫療體系積極投入醫品病安運作、品質改善及參與國內、外學術活動。國軍醫療體系在本屆 ISQua 年會參與投稿共獲選 20 篇。其中，三軍總醫院在陳元皓院長指導下，獲選口頭與海報展示共 17 篇**(發表成果詳如附錄 2)**，顯見三總長期對醫療品質的堅持與追求卓越獲得國際認可與肯定。為展現國軍醫療體系成果，蔡局長與陳院長率領三軍總醫院品質管理中心陳思州主任、陳昱安副主任、皮膚部洪誌聰主任、擬真中心徐永吉副主任、企劃部管理室劉明威主任及國軍臺中總醫院中清分院郭嘉文院長、國軍左營總醫院許聖德副院長及國軍高雄總醫院醫療部李柏群主任等跨職類暨行政團隊共 20 位參與此次會議交流與分享，體現持續追求卓越與接軌國際醫品病安水準。

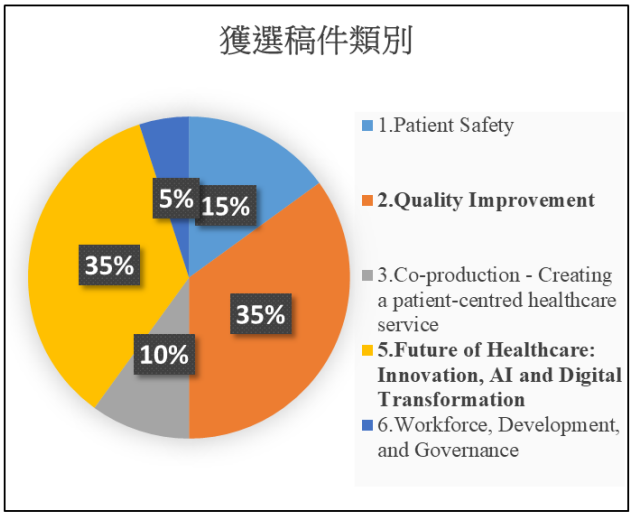
國防部軍醫局、三軍總醫院暨國軍醫療體系團隊與 ISQua 高層合影

三軍總醫院暨國軍醫療體系與台灣參與團隊於 ISQua 會場合影

蔡建松局長、陳元皓院長與 ISQua 候任理事長 Dr. Ellen Joan van Vliet 及執行長 Dr. Carsten Engel 互動照片，並邀約後續至臺灣學術交流及延續出訪成果。

三軍總醫院暨國軍醫療體系團隊於 ISQua 2025 年會豐碩的發表成果

項次	單位	篇數	投稿人員
1	品質管理中心	6	陳思州主任等6位
2	神經外科/手術室	1	吳雪紅護理長
3	麻醉科部	2	徐永吉醫師、李季樺麻護
4	皮膚科部	1	洪誌聰主任
5	臨床病理科	2	楊秉恆醫師
6	護理部	1	邱春榕督導長
7	藥學部	2	黃子耀(口頭) 傅郁螢藥師
8	營養部	1	王韻婷營養師
9	復健部	1	黎桂珍物治師
10	臺中總醫院	1	洪念慈護理官
11	左營總醫院	1	黃麗娟專員 (Lightning talk)
12	高雄總醫院	1	李柏群主任 (Lightning talk)



獲選及投稿統計	
全團	20篇(口頭3、海報17)
三總	17篇(口頭1、海報16)

三軍總醫院臨床藥學部黃子耀藥師口頭報告與各國專家學者互動

ISQua 2025 年會內容廣泛，涉及的主題涵蓋了病人安全、醫療數據整合、數位化轉型等多個方面。以下是參加的幾個重要會議和論壇的詳細內容：

1.日本醫療資料整合與 AI 應用（Shin Ushiro 教授）

日本在醫療數據整合與 AI 應用方面走在了世界前列，尤其是其在數據匿名化、醫療資料共享平台的建設方面取得了顯著成效。Shin Ushiro 教授分享了日本如何通過建立全國醫療資料平台（National Healthcare Data Platform）來整合醫療、護理與公共衛生資料，並利用 AI 在臨床決策支援、疾病預測及災害應變中發揮作用。這些經驗讓我對台灣醫療體系如何在法制框架內推動數據共享和 AI 應用有了更具體的想法。

2.病人安全文化建設（NHS Improvement 團隊）

來自英國 NHS Improvement 團隊的演講深入探討了如何將病人安全從「事件管理」轉化為「文化養成」，這一轉變對我們的病人安全系統建設具有深遠的啟發。他們強調了「Just Culture」與「Safety-II」的應用，並分享了如何通過領導力、教育訓練及制度設計來培養鼓勵通報與學習的醫療環境。這些方法的實踐能夠促進病人安全的長期改善，並且為我院病人安全文化的發展提供了寶貴的經驗與建議。

3.跨領域合作與社區參與的重要性

在多個會議中，跨領域合作與社區參與被強調為推動醫療改善專案的關鍵。以疫苗接種為例，與學校及社區的合作能顯著提高疫苗的接種率，這一做法讓我深刻意識到，醫療改善

工作不能單靠醫療單位自身，而是需要全社會的共同參與。這一觀點對於未來推動病人安全文化的擴展也具有很大的啟發。

4.數位化與 AI 輔助的應用

芬蘭與韓國的代表分享了他們在病人安全領域中導入 AI 輔助通報系統與臨床決策支援系統（CDSS）的經驗。他們的演講展示了如何利用 AI 技術提升臨床決策的效率和準確性，同時減少醫療錯誤。這些經驗對我院目前在優化病安通報系統方面的努力具有很大的啟發，未來我們可以在 AI 技術的支持下進行更多創新應用。

此外，以個人學者之研究發表而出發，學者 Brant Oliver 的研究〈Towards quantitative measurement of coproduction value creation in healthcare〉同樣讓我印象特別深刻。該研究以改良式 Delphi 法整合多方專家意見，試圖建立衡量醫療共同生產價值的量化指標。傳統上，醫療品質多由醫療專業者主導評估，而 coproduction 的概念強調「患者與專業者是共同設計與決策的夥伴」。這種方法學上的創新，不僅突顯了共製過程的可操作性，也為未來政策與教育帶來新的思維框架。

另一場報告〈Co-producing a Patient Reported Experience Measure (PREM) for and with people with intellectual disability〉則以智力障礙者為對象，透過與病人及照顧者共同設計問卷，開發出真正反映其經驗的測量工具。這個案例讓我體會到，coproduction 不只是形式上的參與，而是將「當事人的聲音」納入制度設計，從而提升照護公平性與病人賦能（empowerment）。

此外，來自英國團隊的〈She’s found her voice: working with children and young people with and without learning disabilities〉以兒童及青少年為合作對象，讓不同能力的孩子都能參與研究設計與資料詮釋，展現了共製在研究倫理與包容性方面的重要價值。這些經驗說明，共同生產並非僅限於臨床決策，而是一種文化與態度的轉變—讓患者從「被照顧者」成為「共創者」。

除了本次年會豐富議程內容外，三軍總醫院與臺灣醫療品質協會為使 ISQau 年度品質盛會更具意義及價值，讓臺灣品安同好們於地球另一端共同見證及留下難忘回憶，三軍總醫院與臺灣醫療品質協會於 10 月 13 日共同合辦首屆「2025 ISQua Taiwan Night」活動！來自全臺各機構均踴躍響應，包括臺北馬偕醫院、新竹馬偕醫院、中山醫學大學附設醫院、亞東紀念醫院、萬芳醫院、新光醫院、雙和醫院、高雄醫學大學附設中和紀念醫院、嘉義基督教醫院、彰化基督教醫院、臺南市立醫院、臺北慈濟醫院、臺北醫學大學附設醫院、佛教正德醫院、臺中榮民總醫院、聖保祿醫院、國泰綜合醫院及國軍醫療體系(三軍總醫院、國軍高雄總醫院、國軍臺中總醫院暨中清分院、國軍左營總醫院)等 22 家醫療院所 85 位師長熱情參與，ISQua 理事長 Dr. Ezequiel Garcia Elorrio、執行長 Dr. Carsten Engel 伉儷、日本九州大學附設醫院副院長 Dr. Ushiro Shin、醫策會洪聖惠副執行長及我國駐聖保羅台北經濟文化辦事處朱怡靜總領事、當地僑領葉氏醫院院長葉倫群醫師全家福等貴賓蒞臨指導及交流。在主持人引領全體與會人員齊聲呼喊「Taiwan Night, We Unite!」

及合影後，揭開晚宴活動序幕。蒞臨貴賓除表示祝賀外，也不約而同地紛紛對於臺灣在醫療品質與病人安全參與和重視感到印象深刻！我們國軍醫療體系獻唱一首「堅持」的臺灣歌曲，象徵我們對於自己信念的堅持，各醫院團體也紛紛同樂輪唱展現歌喉，讓 10 月 13 日的 Taiwan Night，成為本次 ISQua 深度學習旅途中，令人感動及難忘的異國體驗！

首屆 2025 ISQua 臺灣之夜參與機構大合影

三軍總醫院與臺灣醫療品質協會合辦首屆 2025 ISQua 臺灣之夜參與貴賓 (蔡建松局長、醫品協會理、監事/秘書處同仁與 ISQua 理事長 Dr. Ezequiel Garcia Elorrio、執行長 Dr. Carsten Engel、醫策會洪聖惠副執行長及駐聖保羅台北經濟文化辦事處朱怡靜總領事及葉氏醫院葉倫群院長伉儷共同見證合影)

2025 ISQua 臺灣之夜國內參與機構的前輩與師長們合影

2025 ISQua 臺灣之夜三軍總醫院品質管理中心陳思州主任與日本九州大學附設醫院副院長 Dr. Ushiro Shin 互動，並邀約後續至臺灣學術交流及延續出訪成果。

2025 ISQua 臺灣之夜-蔡建松局長感謝 ISQua 理事長 Dr. Ezequiel Garcia Elorrio 參與

2025 ISQua 臺灣之夜-蔡建松局長感謝 ISQua 執行長 Dr. Carsten Engel 參與

2025 ISQua 臺灣之夜-蔡建松局長感謝駐聖保羅台北經濟文化辦事處朱怡靜總領事參與

三軍總醫院與臺灣醫療品質協會透過首屆「ISQua 臺灣之夜」，凝聚了來自臺灣各地的醫界團體，更難能可貴的是，邀請到 ISQua 理事長與執行長蒞臨共襄盛舉，為後續交流與邀訪國際級學者赴臺交流建立契機，使臺灣對於醫療品質與病人安全之重視，在國際間被更多夥伴看見與聽見！同時，我們也獲得巴西駐外使館朱怡靜總領事及僑領葉倫群院長的熱情邀訪，於 10 月 14 日專車參訪位於聖保羅西區的葉氏醫院(Hospital Yes)，進一步了解當地醫療生態與發展脈動，以及葉院長在異鄉從無到有的胼手胝足創建醫院之歷程。葉院長從關注當地民眾醫療需求、議題，到分析問題、擬定解決方案及興建醫院進而提升地區醫療品質等，充分展現我們共同追求的持續品質改善及臺灣精神！難得的經驗分享與歷程非常值得提供做為臺灣醫學生學習的典範，亦開啟未來國際醫療合作與技術交流的新契機。

三軍總醫院暨國軍醫療體系院所參訪巴西聖保羅葉氏醫院，並與駐聖保羅台北經濟文化辦事處朱怡靜總領事、葉倫群院長交流及合影

心得及建議：

ISQua 成立宗旨是利用持續教育、知識分享、外部評估與支持醫療系統的方式，來改善醫療品質與提升病人安全。三軍總醫院同仁於年會發表的過程及與各國專家學者的互動中，努力展現三總在臺灣醫療體制下持續改善的用心與成果，獲得各國先進及同好的肯定及好評，醫師、醫事職類及行政同仁均主動汲取國際健康照護品質推動的寶貴經驗，作為推動下一階段品質改善之基石，三軍總醫院將堅持相同的理念與目標，從醫品病安、醫學教育、智慧醫療及永續發展等議題賡續推動國際交流，持續致力以病人為中心提供最優質的醫療照護，並以國際視野推動醫品病安之卓越發展，期成為與國際接軌的標竿醫學中心。

這次會議舉辦在巴西，了解不同台灣的醫療文化，雖然全民健保制度，但因為醫療資源分布不均及有很廣大的亞馬遜森林隔閡，讓每個人所受到的醫療及對於醫療的接受程度有所不同，不同專案推行的人員突破各種障礙，致力於全體人民的醫療照護品質著實令人佩

服，證明即使在困難的環境中，系統性的改善方法依然能看到效果，但後續還需要有外部的資源支持，才能看到專案的成果持續下去。

特別令人印象深刻的是，大會強調「科技與人性並進」的重要性。在醫療 AI、智慧決策輔助與虛擬實境教學等創新應用快速發展的時代，如何確保病人的尊嚴與醫療的公平性，成為各場次的共同核心。氣候變遷與永續發展議題也首次被納入醫療品質討論，呼應全球健康（Global Health）與綠色醫療（Green Healthcare）的新趨勢。

此外，多專業協作模式在病人安全中的實務成效、文化與教育導向的品質改善長期策略，這些皆對本院未來推動智慧醫療與品質創新具有參考價值；ISQua 2025 讓我重新看見醫療品質的核心不僅是技術與流程的改善，更是「關係的重建」；Coproduction 提醒我們：真正的醫療創新，往往始於「一起做」的信念與行動。

醫療品質暨病人安全議題、任務須長期關注及永續經營，ISQua 2025 的參與歷程及經驗於 114 年 10 月 22 日院務會議與醫院主管分享，並規劃於 114 年 12 月邀集醫院同仁參與 ISQua 成果分享會及列入 114 年第 4 季醫療品質暨病人安全委員會報告，以及積極籌備 115 年 7~8 月辦理國際醫療品質研討會等，以延續及拓展本次遠赴巴西聖保羅的寶貴經驗。

最後，明年度 ISQua 2026 國際年會將於愛爾蘭舉辦，會議主題為「Thriving Through Compassion and Community: Sharing Stories for the Future of Health Systems」，並將於 114 年 11 月 12 日開放徵稿，三軍總醫院品質管理中心將持續統籌全院各醫師專科、醫事職類及行政團隊踴躍投稿及參與，唯有一步一腳印的堅持走下去，品質改善的成果才能逐步踏實及展現持續改善堆疊的成果，並將每一位成員的努力果實匯聚成醫院對品安的整體績效，分享給國內、外醫品病安同好及彼此砥礪成長，讓我們彼此約定於 2026 愛爾蘭都柏林再相會！

Summary Agenda

Speakers

English | Português (Brasil)

Please note that the conference programme will be updated on a regular basis.

Agenda

Here's what's scheduled for the event.

All Dates 12/10-15/10 | Sunday 12/10 | Monday 13/10 | Tuesday 14/10 | Wednesday 15/10

Filters

Search

12 October 2025

09:00 BRT

From Disruption to Direction: The Strategic Power of Accr…

09:00-12:30

Leslee J. Thompson
CEO
Health Standards Organization and...

Ellen Joan van Vliet
President-Elect
ISQua

Local Workshop- ONA

09:00-17:00

Graccho Alvim
FBH

Daniel da Matta

The Impact of Climate Change on Human Health and Healt…

09:00-12:30

Jeffrey Braithwaite
Immediate Past President
International Society for Quality in ...

Samantha Spanos
Researcher
Australian Institute of Health Innov..

When system leadership meets AI – Opportunities and a w…

09:00-12:30

Eyal Zimlichman
Chief Transformation Officer, Chief ...
ARC, Sheba Medical Center

Peter Lachman
M.D. MPH. M.B.B.Ch., B.A,. FRCPCI

12:30 BRT

Lunch

12:30-13:30

13:30 BRT

ISQua Journals - Paper Development and Publication Wor…

13:30-17:00

Aziz Sheikh
Head of Department and Nuffield P...
Primary Care Health Sciences at Un...

Prof Philip Phan
Alonzo and Virginia Decker Profes...
Johns Hopkins Carey Business Scho...

Quality Improvement for the long term – Developing skills …

13:30-17:00

Jan Mackereth-Hill
Independent Consultant
Quality Improvement

Helen Crisp
Consultant
Crisp QI

Using PROMs to improve health, quality, patient-centered …

13:30-17:00

Eyal Zimlichman
Chief Transformation Officer, Chief ...
ARC, Sheba Medical Center

Brant J Oliver
Associate Professor
Dartmouth in New Hampshire, USA.

17:00 BRT

Welcome Reception

17:00-19:00

13 October 2025

07:30 BRT

Learning Journey: Coproduction- what is the value propos…

07:30-08:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

08:00 BRT

Sponsored Session: PBSF: At the Right Time: When Every…

08:00-08:30

Gabriel Variane
Founder and President
PBSF

08:45 BRT

Conference Opening Ceremony

08:45-09:00

Ezequiel Garcia Elorrio
President
ISQua

Fábio Leite Gastal
Chairman of the Board and Direct
ONA

09:00 BRT

Featured

Health for all: a global challenge and the Brazilian experie…

09:00-10:00

Ezequiel Garcia Elorrio
President
ISQua

Fábio Leite Gastal
Chairman of the Board and Direct
ONA

10:15 BRT

Morning Break

10:15-10:45

10:45 BRT

Expert Session- Climate Change

10:45-12:15

Rafael Rodrigo da Silva Pimentel
Senior Research Analyst
Albert Einstein Israeli Faculty of He...

Ilana Eshriqui Oliveira
Researcher
(CEPPAR) at Hospital Israelita Albert...

Expert Session- Co-Production

10:45-12:15

Carolina Wannheden
Associate Professor in Health Infor...
Karolinska Institutet in Stockholm, ...

Kate Oulton
Consultant Nurse for Family Engag...
GOSH Children's Cancer Centre

Expert Session- Quality Improvement

10:45-12:15

Andrea Liliana Vesga Varela
Epidemiology Analyst
(CEPPAR) at Hospital Israelita Albert...

Daiana Bonfim
Nurse
Rio Preto Medical School (FAMERP)

Expert Session- Workforce, Development, and Governance

10:45-12:15

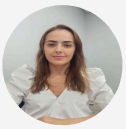
Daniel YT Goh
Chief Wellbeing Officer
NATIONAL UNIVERSITY HEALTH SYS...

Joel Lehmann
Executive Director
EQUAM Stiftung

Hot Topics- AM Screen 1

10:45-12:15

Alejandro Arrieta
Economist and Faculty
Department of Global Health at Flo...



Dra Karla Lorena Mendonça Ca..
CRER/Agir

Hot Topics- AM Screen 2

10:45-12:15

AI

Ashraf Imtiaz

Ana Maria Saut
University of São Paulo

Short Oral- Co-Production

10:45-12:15

Brant J Oliver
Associate Professor
Dartmouth in New Hampshire, USA.

Albertine de Haan
Hogeschool Windesheim & Radbo

Short Oral- Equitable and integrated care for healthy com…

10:45-12:15

Olu Jegede
Senior Vice President and Chief He...
Cone Health

Chris Cornue
Executive Vice President & Chief S
Cone Health

Short Oral- Patient Safety + External Evaluation

10:45-12:15

Dr. Luis Torres Torija Arguelles
Patient Safety Movement Foundati...

CC

Ching-Wen Chen
Department of Pharmacy, Kaohsiu

Short Oral- Quality Improvement

10:45-12:15

R M Dr. Rachel McCauley
Post-Doctoral Researcher
Dublin City University

 Chih-Cheng Kuo
Cathy General Hospital

12:15 BRT

Lunch

12:15-13:45

12:30 BRT

Hot Topics PM Screen 1

12:30-13:30

C Camila Leal Deister Machado

C A Carlos Alberto Cordeiro De Abr..

Hot Topics PM Screen 2

12:30-13:30

H W Hsiuhsia Weng

 Jui-Ting Chang
Director, Quality Management De
Shin Kong Wu Ho-Su Memorial Hos..

Hot Topics PM Screen 3

12:30-13:30

Aline Cesário Feitosa
CEO
Instituto Sallus

AC

Andrea Conti

Hot Topics PM Screen 4

12:30-13:30

A

Adda Sabrina Moura

Lucas Passamonti de Souza
Management Engineer
FIOCRUZ

ISQua EEA Update session

12:30-13:30

Learning Journeys: Connecting Through Stories

12:30-13:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

Sponsored Session: Support4Resilience (S4R): Strengthe…

12:30-13:15

CH

Cecilie Haraldseid-Driftland

HB

Hilda Bø Lyng

13:45 BRT

Featured

Fellowship in Action

13:45-15:15

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

Expert Session- External Evaluation + Workforce

13:45-15:15

Catherine Calderwood
Consultant obstetrician and gynaec...
University of Strathclyde

Ellen Joan van Vliet
President-Elect
ISQua

Expert Session- Future of Healthcare: Innovation, AI and D...

13:45-15:15

Gilvane Lolato
Operations Manager
ONA (National Accreditation Organi...

Piyawan Limpanyalert
Chief Executive Officer
Healthcare Accreditation Institute (...

Expert Session- Patient Safety

13:45-15:15

Peter Lachman
M.D. MPH. M.B.B.Ch., B.A,. FRCPCH,...

Facundo Jorro-Baron
Researcher
Instituto de Efectividad Clínica

Hot Topics PM Screen 2

13:45-15:15

C D Claudia de Barros

J W Jung Won Shin

Hot Topics- PM- Screen 1

13:45-15:15

B N Bronwyn Newman

Dr. Po-Chun Lee
Director of the Medical Departme
Kaohsiung Armed Forces General H.

Short Orals- Future of Healthcare: AI and Digital Transform…

13:45-15:15

Dr Grazia Antonacci
Imperial College London

A S Ake-Chittra Sukkul

Short Orals- Patient Safety and Quality Improvement

13:45-15:15

E F Elin Fröding

F D Fatou Diagne

Short Orals- Workforce, Policy, and Governance

13:45-15:15

A Anna George

R M Roderick Manzo Napulan

WHO Session: Equipped to Care: Strengthening Compete…

13:45-15:15

Paulo Sousa
Associate Professor and Director
Department of Health Strategies at ...

Irina Papieva
Technical Officer
WHO

15:15 BRT

Afternoon Break

15:15-15:45

15:45 BRT

IJQHC Reizenstein Award

15:45-16:00

Aziz Sheikh
Head of Department and Nuffield P...
Primary Care Health Sciences at Un...

Georgia Tobiano
Senior Research Fellow in End-User..
Griffith University and Gold Coast H.

16:00 BRT

Featured

Afternoon Plenary - Promoting health and wellbeing throu…

16:00-17:00

Asaf Bitton
Executive Director
Ariadne Labs

Aziz Sheikh
Head of Department and Nuffield
Primary Care Health Sciences at Un.

17:00 BRT

Featured

Poster Reception

17:00-18:30

14 October 2025

07:30 BRT

Learning Journeys: Quality Improvement and Complexity: …

07:30-08:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

08:00 BRT

Sponsored Session AUGURI: Revolutionizing Healthcare a…

08:00-08:45

Rose Grigio
CEO
AUGURI

Sponsored Session Folks - Transforming Quality and Safe…

08:00-08:30

Isabel de Jesus Simão
Partner
FOLKS

08:45 BRT

HAL Award

08:45-09:00

Lewis Kazis
Professor Emeritus, Research Direc...
Boston University School of Public ...

Ulfat Shaikh
Professor of Pediatrics
University of California Davis Health

09:00 BRT

Featured

From vision to reality: Scaling up patient safety initiatives …

09:00-10:00

Francisco Lima
Engenheiro Civil, Pai da Júlia Lima

Ulfat Shaikh
Professor of Pediatrics
University of California Davis Health

10:00 BRT

Lifetime Achievement + Presidential Citation for Distinguis…

10:00-10:15

Ezequiel Garcia Elorrio
President
ISQua

10:15 BRT

Morning Break

10:15-10:45

10:45 BRT

Expert Session - Academy: 'High-Tech and High-Touch: Us…

10:45-12:15

Aziz Sheikh
Head of Department and Nuffield P...
Primary Care Health Sciences at Un...

Ulfat Shaikh
Professor of Pediatrics
University of California Davis Health

Expert Session- Patient Safety

10:45-12:15

Marcia Kirwan
Associate Professor
School of Nursing, Psychotherapy a...

Jafet Arrieta

Expert Sessions- 1. External Evaluation 2. Quality Improve…

10:45-12:15

Rashad Massoud
Head
Global Health, USA, IQVIA

Suzanne Pavon
Global Head of Compliance, Quali
Galderma

Hot Topics- AM Screen 1

10:45-12:15

Wei-Ting Hsu

Aline Morião
Consultant Radiologist
Brazilian College of Radiology and ...

IHF Expert Session: Come and play the Carbon Emissions…

10:45-12:15

Marco Saavedra Bravo
Continuous Improvement Manager
Hospital Sírio-Libanês

J. Antônio Cirino
Director of Education and Develop...
Agir (Brazil)

Short Orals- Future of Healthcare: AI and Digital Transform…

10:45-12:15

Fizza Gilani
Director, Accreditation
College of Physicians & Surgeons of...

Dr Helena Barreto dos Santos
Chief Quality Officer
Hospital de Clínicas de Porto Alegre

Short Orals- Patient Safety and Quality Improvement

10:45-12:15

C L

Chiayi Lin

E J

Eliseo Jr. Fernando

Short Orals- Quality Improvement

10:45-12:15

H L

Hsuan-Chih Lao
MacKay Memorial Hospital/ MacKa...

L P

Livia Pedrilio

Short Orals- Workforce, Policy, and Governance

10:45-12:15

Axel Ros
Research Leader
Region Jönköping County, Sweden

J D

Jacob Dreiher

12:15 BRT

Featured

Discover ISQua's International Academy of Quality & Safe…

12:15-12:45

Jeffrey Braithwaite
Immediate Past President
International Society for Quality in Health Care (ISQua)

Lunch

12:15-13:45

12:30 BRT

Hot Topics PM Screen 3

12:30-13:30

E M Edenise Maria Santos da Silva ...

Z A Zenewton André da Silva Gama

Hot Topics PM Screen 4

12:30-13:30

M A Mabel Adobea Owiredu

A O Aimad Ourahmoune

Hot Topics- PM Screen 1

12:30-13:30

F D Franciely Daiana Engel

J C Juliana Cajado Gabriel

Hot Topics- PM Screen 2

12:30-13:30

Dr. Angela O'Dea
Sr. Lecturer in Patient Safety, Huma...
University of Galway

P J

Pedro J. Saturno-Hernandez

Learning Journeys: Quality Improvement and Complexity: ...

12:30-13:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

Sponsored Session Elsevier: From Innovation to Impact: ...

12:30-13:30

A F

Aydamari Faria
Universidade Federal Fluminense
AI and neuroscience

D N

Daniela Naranjo
Value Based heakthcare Manager
LATAM.Elsevier

The African Community of Practice: Learning, Storytelling ...

12:30-13:30

E O

Elom Otchi

R N

Ruthpearl Ng'ang'a

13:15 BRT

Featured

ISQua Fellowship Demo

13:15-13:30

Caitriona Curran
Education Manager
ISQua

13:45 BRT

Expert Session- Cognitive Load and Clear Communication…

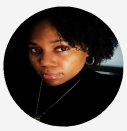
13:45-15:15

John Burnam
Professor, Head of Design
Trinity University, KALOS

John Brennan
General Practitioner

Expert Session- Equitable and integrated care for healthy …

13:45-15:15



Cherelle Augustine
Engagement Coordinator
NIHR Applied Research Collaborati...

Mr Ganesh Sathyamoorthy
Assistant Director for Partnerships ..
NIHR Applied Research Collaborati...

Expert Session- Evaluating International Health Reforms: I…

13:45-15:15

Samantha Spanos
Researcher
Australian Institute of Health Innov...

Søren Paaske Johnsen
Head
Danish Center for Clinical Health Se.

Hot Topics- PM Screen 1

13:45-15:15

AM Ana Maria Müller de Magalhães

T Tatiane Florentino

Short Orals- Climate Change and Sustainability in Healthc…

13:45-15:15

Gilvane Lolato
Operations Manager
ONA (National Accreditation Organi...

BS Bruna Steiner

Short Orals- External Evaluation

13:45-15:15

Prof. Anne Lee
Prof
Shenzhen Hospital Accreditation Re...

Dr Dilantha Dharmagunawarde.
Dr
Griffith University

Short Orals- Patient Safety and Quality Improvement

13:45-15:15

CR Charan Raj Mede

MD Marta de Oliveira Ramalho

Short Orals- Quality Improvement

13:45-15:15

AF Adriana Freitas

CH Ching-Hua Huang

WHO Session: Clinical Hotspots for Harm: A Systems App...

13:45-15:15

Nikhil Gupta
Technical Officer
WHO

Irina Papieva
Technical Officer
WHO

15:15 BRT

Afternoon Break

15:15-15:45

16:00 BRT

Featured

Afternoon Plenary: A New Era for Patient Safety

16:00-17:00

Eric Schneider
Adjunct Professor
Department of Health Policy and M...

Paulo Sousa
Associate Professor and Director
Department of Health Strategies at

17:00 BRT

ISQua EEA IAP Awards

17:00-17:15

Philip Crowley
ISQua Board Member, Chair of External Evaluation Award Committee
ISQua

18:30 BRT

Featured

Networking Reception

18:30-22:00

15 October 2025

07:30 BRT

Learning Journeys: Learning and Leading for Safety

07:30-08:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

08:45 BRT

Welcome to Dublin 2026!

08:45-09:00

KO

Kate O'Flaherty
Director
National Patient Safety Office, Irela...

Philip Crowley
ISQua Board Member, Chair of Exte.
ISQua

09:00 BRT

Featured

The Impact of Climate Change on Human Health and Healt…

09:00-10:00

Jodi Sherman
Associate Professor
Yale School of Medicine

Philip Crowley
ISQua Board Member, Chair of Ex
ISQua

10:15 BRT

Morning Break

10:15-10:45

10:45 BRT

Expert Session- Co-Production

10:45-12:15

Peter Glick
Participatory Healthcare Researche...
Northern Health Futures Hub at Ne...

Helen Leonard
Consultant Paediatrician
Newcastle-upon-Tyne, UK

Expert Session- Patient Safety

10:45-12:15

Ellen Joan van Vliet
President-Elect
ISQua

Anthony Staines
Lecturer
IFROSS, University of Lyon, France

Expert Session- Quality Improvement

10:45-12:15

John Brennan
General Practitioner

John FitzSimons
Consultant Paediatrician
Children's Health Ireland, Temple S..

Expert Session- Workforce, Development, and Governance

10:45-12:15

Dr. Søren Valgreen Knudsen
President
Danish Society for Quality in Health...

C H

Cecilie Haraldseid-Driftland

Short Orals- Co-production - Creating a patient-centred he…

10:45-12:15

A D

Aoife De Brún

L D

Lindsay Dewa

Short Orals- Equitable and integrated care for healthy com…

10:45-12:15

L P

Lisiane Pereira

P J

Pedro J. Saturno-Hernandez

Short Orals- Patient Safety and Quality Improvement

10:45-12:15

A T

Adriano Tachibana Adriano

E M

Eilish Mcauliffe

Short Orals- Quality Improvement

10:45-12:15

E O

Elom Otchi

Ms Helvi Amukwaya
Registered Nurse/Midwife
International Training and Educatio..

12:15 BRT

Lunch

12:15-13:45

12:30 BRT

Hot Topic- PM Screen 3

12:30-13:30

JF Jaqueline Ferreira da Silva

Maria Peniche Lozano
MD, MSc
Secretaria de Salud Quintana Roo, ...

Hot Topics- PM Screen 1

12:30-13:30

AI Ashraf Imtiaz

Gabriel Faria De Oliveira
Operations Director
Valor & Saúde

Hot Topics- PM Screen 2

12:30-13:30

LP Lisiane Pereira

IG Isabelle Gaboury

Hot Topics- PM Screen 4

12:30-13:30

KR

Ms. Kakoli Roy
Hamad Medical Corporation

Lucas Ito Suguikawa
Medical Coordinator
AME Psychiatry

Learning Journeys: Coproducing Safe Care as the Right C…

12:30-13:30

John Brennan
General Practitioner

Paul Bowie
Education Editor
ISQua

13:15 BRT

Featured

ISQua Fellowship Demo

13:15-13:30

Caitriona Curran
Education Manager
ISQua

13:45 BRT

Expert Session- Building a Healthier Nation: The CAHO Qu…

13:45-14:45

Lallu Joseph
Quality Manager, Associate GS
Christian Medical College, Vellore

Rahul Deshmukh
Medical Director, Chief Anaesthesio.
Medcare Orthopedics and Spine Ho.

Expert Session- Equitable and integrated care for healthy …

13:45-14:45

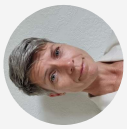
John Brennan
General Practitioner

BA

Bruce Agins

Expert Session- Equitable and integrated care for healthy …

13:45-14:45



Hanna Odén Poulsen
Process Leader for Cancer Care
Region Jönköping County

Samantha Spanos
Researcher
Australian Institute of Health Innov..

Short Orals- Climate Change and Sustainability in Healthc…

13:45-14:45

Philip Crowley
ISQua Board Member, Chair of Exte...
ISQua

RR

Raquel Rodrigues Nakamato

Short Orals- External Evaluation

13:45-14:45

Gilvane Lolato
Operations Manager
ONA (National Accreditation Organi...

EC

Edward Chappy

Short Orals- Patient Safety and Quality Improvement

13:45-14:45

AC

Anna Connolly

AC

Andrea Conti

Short Orals- Quality Improvement

13:45-14:45

Ms Hannah Nungari Mwaniki
MEL/QI Manager
Aga Khan University, Nairobi-NEST3...

H W

Hsiuhsia Weng

WHO Session: Leadership That Saves Lives: Advancing P...

13:45-14:45

Nikhil Gupta
Technical Officer
WHO

Peter Lachman
M.D. MPH. M.B.B.Ch., B.A,. FRCPCI

14:45 BRT

Featured

Closing Plenary: CommUNITY Power

14:45-15:45

John Brennan
General Practitioner

Solange Baptiste
Executive Director
ITPC Global

15:45 BRT

Featured

Poster Awards + Conference Close

15:45-16:00

Ezequiel Garcia Elorrio
President
ISQua

Fábio Leite Gastal
Chairman of the Board and Directo...
ONA

Enhancing Emergency Department Disposition Decisions Using AI-Enabled ECG

S-J. Chen[1, 2], Y-T. Su[2], H-F. Hu[3], C. Lin[4], T-W. Chen[5], Y-H. Chen[6] and C-S. Tsai[7,8]

1 Quality Management Center, 2 Department of Emergency Medicine, 3 Tri-Service General Hospital Penghu Branch, 4 Department of Artificial Intelligence and Internet of Things, 5 Division of General Surgery, 6 Department of Neurosurgery, 7 Division of Cardiovascular Surgery, Tri-Service General Hospital, Taipei, Taiwan 8 Medical Affairs Bureau, Ministry of National Defense (ROC)

P333

INTRODUCTION

Accurate patient disposition in the emergency department (ED) is critical for reducing adverse events and optimizing resources. Artificial intelligence (AI)–enhanced electrocardiograms (ECGs) can dynamically predict mortality and cardiac dysfunction. However, the prognostic utility of serial ECGs, particularly **the follow-up ECG prior to discharge**, has not been extensively studied.

AIM

This study aimed to evaluate whether dynamic changes in AI-predicted ECG risk scores could enhance prediction of post-discharge outcomes.

METHOD

Design & Setting: Retrospective cohort study conducted in the ED of a single medical center from July 2012 to December 2022.

Population: Patients who underwent at least two ECG examinations during their ED visit and were directly discharged.

Exclusion Criteria:

- Interval from admission to the first ECG > 1 hour
- Interval between the first and second ECG < 1 hour
- Interval from the second ECG to discharge > 2 hours
- Total ED stay > 48 hours
- Death during the ED visit

Risk Stratification: 90-day mortality risk (low, medium, high) determined using AI-enabled ECG models applied to the initial and follow-up ECGs prior to discharge. Patients were classified into four groups based on changes in risk scores between the two ECGs: low-to-low, medium/high-to-low, low-to-medium/high, and medium/high-to-medium/high.

Statistical Analysis: Predictive performance evaluated with area under the curve (AUC). Kaplan–Meier (KM) curves for 90-day mortality. Cox proportional hazards model to compare mortality risk across categories, with the low-to-low risk group as the reference.

RESULTS

- A total of 11,508 cases were included. The AI-enabled ECG model, using initial and follow-up ECGs before discharge, revealed transitions among different risk groups (**Figure 1**).
- Overall, the mean risk score declined from 68.8 ± 24.1 at baseline to 65.7 ± 24.1 at follow-up. Significant differences were observed across the risk groups (**Table 1**).
- Follow-up ECGs demonstrated improved predictive accuracy (AUC 83.3% vs. 78.6%), enhanced PPV (2.8% vs. 2.1%), and maintained NPV (**Figure 2**).
- KM and Cox analyses showed higher 90-day mortality in patients persistently medium/high risk (3.3%; HR = 12.44, 95% CI: 4.62–33.49) or shifting from low to medium/high risk (1.3%; HR = 6.01, 95% CI: 1.70–21.27), compared with stable low risk reference group (0.2%). Patients improving from medium/high to low had 0.5% mortality (HR = 1.91, 95% CI: 0.45–8.14). The C-index was 0.911, reflecting robust predictive performance (**Figure 3**).

Figure 1. Case selection flow chart

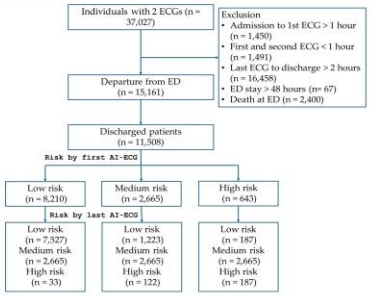


Table 1. AI-ECG stratified patients into three risk groups

Variables	Low risk	Medium risk	High risk	p-value
Number, n (%)	8210(71.3%)	2655(23.1%)	643(5.6%)	<0.001
Age	60.59 ± 16.13	71.56 ± 15.09	69.98 ± 16.40	<0.001
Male, n (%)	4535(55.2%)	1302(49.0%)	335(52.1%)	<0.001
Triage level, n (%)				<0.001
1	126(1.5%)	132(5.0%)	66(10.3%)	
2	2828(34.4%)	1176(44.3%)	355(55.2%)	
3	4957(60.4%)	1275(48.0%)	209(32.5%)	
4	298(3.6%)	72(2.7%)	13(2.0%)	
5	1(0.0%)	0(0.0%)	0(0.0%)	
1st ECG Mortality Risk Score	59.26 ± 22.04	91.39 ± 2.80	98.08 ± 1.03	<0.001
2nd ECG Mortality Risk Score	58.53 ± 23.35	82.75 ± 14.73	87.36 ± 15.93	<0.001
Mortality in 90 days, n (%)	24(0.3%)	41(1.7%)	23(3.9%)	<0.001

mean ± SD

Figure 2. ROC Curves of AI-ECG for Predicting All-Cause Mortality Within 90 Days

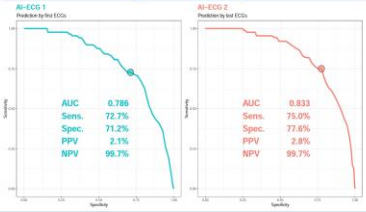
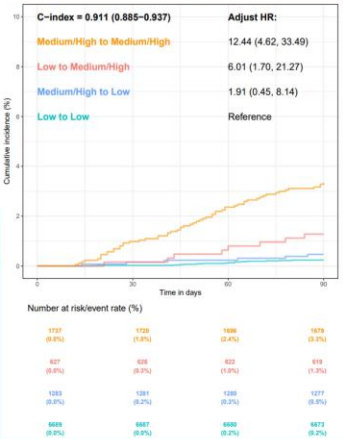


Figure 3. KM curves of 90-day all-cause mortality across four categories



CONCLUSIONS

AI-enabled ECGs obtained **before discharge** provide **better mortality risk stratification** than initial ECGs. Medium- and high-risk patients require careful consideration, while low-risk patients can usually be discharged safely. Though not a substitute for full clinical assessment, AI-ECG is a practical tool that supports clinical judgment and safer discharge decisions in the dynamic ED setting.

REFERENCES

Lin, C.S.; Liu, W.T.; Tsai, D.J.; Lou, Y.S.; Chang, C.H.; Lee, C.C.; Fang, W.H.; Wang, C.C.; Chen, Y.Y.; Lin, W.S.; et al. **AI-enabled electrocardiography alert intervention and all-cause mortality: a pragmatic randomized clinical trial. Nat Med 2024, 30, 1461-1470**, doi:10.1038/s41591-024-02961-4.

Tsai, D.J.; Lou, Y.S.; Lin, C.S.; Fang, W.H.; Lee, C.C.; Ho, C.L.; Wang, C.H.; Lin, C. **Mortality risk prediction of the electrocardiogram as an informative indicator of cardiovascular diseases. Digit Health 2023, 9**, 20552076231187247, doi:10.1177/20552076231187247.

Chen, Y.J.; Lin, C.S.; Lin, C.; Tsai, D.J.; Fang, W.H.; Lee, C.C.; Wang, C.H.; Chen, S.J. **An AI-Enabled Dynamic Risk Stratification for Emergency Department Patients with ECG and CXR Integration. J Med Syst** 2023, 47, 81, doi:10.1007/s10916-023-01980-x.

ACKNOWLEDGEMENT

We gratefully acknowledge **MAB (ROC)** for funding support, and the **AIoT Center** of Tri-Service General Hospital for their assistance with the analysis.

CONTACT INFORMATION

Presenting author: syjou.chen@gmail.com

Synergistic Effects between Critical Alert System and Medical Indicator Decision Support System： An Empirical Study from Real-Time Monitoring Data to Intelligent Clinical Applications

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Impact of a Critical Alert System on In-Hospital Mortality Among Surgical Patients: A Four-Year Retrospective Analysis

Rong-Chong Wu*[1], Chueng-He Lu[2], Yih-An Chen[1], Tzu-Yu Hu[1], Li-Fen Yeh[1], Teng-Wei Chen[3], Yuan-Hao Chen[4], Sy-Jou Chen[1]

[1]Quality Management Center, [2]Department of Anesthesia, [3]Division of General Surgery, [4]Department of Neurosurgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

P129

INTRODUCTION

Surgical inpatients face substantial risk of postoperative complications—sepsis, infection, organ failure—that sharply increase in-hospital mortality. Early recognition of clinical deterioration is essential. Our hospital deployed a Critical Alert System (CAS) that continuously aggregates vital signs (blood pressure, heart rate, respiratory rate, temperature, consciousness, oxygen saturation) and issues tiered alerts to care teams when risk thresholds are exceeded. Evidence on CAS performance in surgical populations remains limited. We conducted a four-year (2021–2024) retrospective analysis at a Taiwanese medical center to examine the association between CAS alerts and in-hospital mortality among surgical patients, aiming to inform early-warning design and strengthen patient safety.

AIM

To evaluate whether a Critical Alert System (CAS) identifies surgical inpatients at highest risk of in-hospital death and to quantify the independent association between CAS alerts and mortality. Specific aims: (1) compare demographics, admission characteristics, and care settings between alerted and non-alerted encounters; (2) estimate adjusted odds of mortality associated with yellow/red alerts using multivariable logistic regression (controlling for age, sex, admission type, specialty, and ward/ICU); (3) describe mortality trends from 2021–2024; and (4) derive implications for threshold calibration and workflow integration to strengthen early recognition and patient safety.

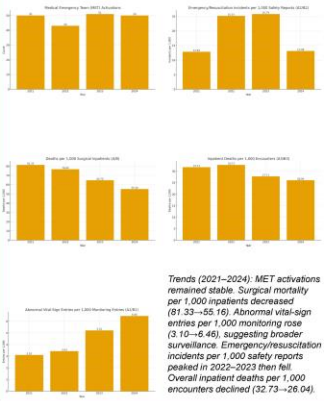
METHOD

Design: Retrospective cohort at a tertiary medical center in Taiwan (2021–2024). Population: adult surgical inpatients; exclusions: pre-op palliative care and missing key variables. Intervention: hospital Critical Alert System (CAS) aggregating blood pressure, heart rate, respiratory rate, temperature, consciousness, and SpO_2 into a three-tier score; yellow (7–11) and red (≥12) trigger SMS to teams. Exposure: any CAS SMS during admission (alerted) vs none (non-alerted). Outcome: in-hospital mortality. Analysis: descriptive comparisons (t test/χ^2) and multivariable logistic regression adjusted for age, sex, admission type, specialty, and ward/ICU; results as adjusted odds ratios with 95% CIs (α=0.05). Ethics: IRB-approved, de-identified data.

RESULTS

We analyzed 48,136 surgical inpatient encounters (2021–2024). CAS generated SMS alerts for 138 admissions (0.3%); 47,998 had no alert. Alerted patients were older, more often admitted via the emergency department, and more frequently managed in ICUs (all p<0.05). Crude mortality was 39.86% in the alerted group versus 6.78% without alerts. After adjustment for age, sex, admission type, surgical specialty, and ward level, CAS alerts remained strongly associated with in-hospital death (adjusted OR 2.07; 95% CI 1.40–3.07; p<0.001), indicating that alerts primarily flagged severe illness rather than causing harm.

System trends supported this interpretation. Surgical mortality per 1,000 inpatients declined year-over-year from 81.33 (2021) to 55.16 (2024). Overall inpatient deaths per 1,000 encounters similarly fell from 31.73 to 26.04, approaching the weighted peer benchmark (26.6 in 2024). Monitoring intensity changed over time: abnormal vital-sign entries per 1,000 monitoring records increased from 3.10 to 6.46, consistent with broader surveillance and/or evolving thresholds, whereas emergency/resuscitation incidents per 1,000 safety reports peaked in 2022–2023 (25.15–25.79) and decreased in 2024 (13.08). Medical Emergency Team activations remained stable (50, 43, 51, 50). Together, results show CAS alerts identify high-risk surgical patients while hospital mortality rates improved during the study period.



Trends (2021–2024): MET activations remained stable. Surgical mortality per 1,000 inpatients decreased (81.33→55.16). Abnormal vital-sign entries per 1,000 monitoring rose (3.10→6.46), suggesting broader surveillance. Emergency/resuscitation incidents per 1,000 safety reports peaked in 2022–2023 then fell. Overall inpatient deaths per 1,000 encounters declined (32.73→26.04).

Meeting、Pathway、Alert 、Incident、Decision Data Table

Source/Item/Year		2021	2022	2023	2024
Meeting	Number of "Medical Emergency Team " activations	50	43	51	50
Clinical Pathway System	Total number of surgical inpatient deaths(A)	895	858	842	713
	Total number of surgical inpatients(B)	11,004	11,193	13,014	12,925
	Deaths per thousand surgical inpatients(A/B)	81.33	76.66	64.70	55.16
Critical Alert System	Total entries with abnormal vital signs(A_1)	47	72	270	59
	Total vital sign monitoring entries (B_1)	15,168	21,008	51,704	9,137
	Abnormal vital sign entries per thousand monitoring entries(A_1/ B_1)	3.10	3.43	5.22	6.46
Patient Safety Incident Reporting System	Total number of emergency/resuscitation incidents(A_2)	22	37	31	16
	Total number of patient safety incident reports(B_2)	1,716	1,471	1,202	1,223
	Emergency/resuscitation incidents per thousand patient safety incident reports(A_2/ B_2)	12.82	25.15	25.79	13.08
Medical Indicator Decision Support System Process-c	Total inpatient deaths(A_3)	1757	1845	1786	1680
	Total inpatient encounters(B_3)	55,382	56,378	64,447	64,504
	Inpatient deaths per thousand encounters (A_3/ B_3)	31.73	32.73	27.71	26.04
	Inpatient deaths per thousand encounters (Weighted average among Taiwanese hospital peers)	28	32	34	26.6

(abnormal-vitals/1,000 monitoring doubled since 2021), yet outcomes improved—surgical and all-patient death rates fell, converging with the peer benchmark (26.6 in 2024). Emergency/resuscitation density tracked reporting volume, highlighting denominator effects and the need to interpret incident rates alongside reporting behavior.

CONCLUSIONS

Among surgical inpatients, CAS alerts identified patients with substantially worse baseline status and markedly higher mortality. After adjustment, alerted encounters still had increased odds of death, indicating alerts reflect severity rather than harm from CAS. Although hospital-wide surgical mortality decreased from 8.13% (2021) to 5.52% (2024), this retrospective, single-center design and group imbalances preclude attributing improvements to CAS. CAS remains valuable as a real-time risk signal to prioritize assessment and escalation. Future prospective or multi-center studies should test causal impact, refine thresholds, and incorporate physiologic, laboratory, and clinical context to optimize sensitivity/specificity and strengthen surgical patient safety.

ACKNOWLEDGEMENT

We thank the surgical, anesthesia, and nursing teams at Tri-Service General Hospital for their collaboration in deploying and maintaining the Critical Alert System (CAS) and for their commitment to patient safety. We are grateful to the Quality Management Center for data extraction and analytics support, and to the Information Technology Office for system integration and SMS infrastructure. This study was approved by the Institutional Review Board of Tri-Service General Hospital and used de-identified data. The views expressed are those of the authors and do not necessarily represent the institution. The authors report no conflicts of interest.

REFERENCES

1.Patel A, Maruthananth K, Matharu N, Pinto AD, Hosseini B. *Early Warning Systems for Acute Respiratory Infections: Scoping Review of Global Evidence.* JMIR Public Health and Surveillance. 2024;10:e62641. Synthesizes international evidence on early-warning tools, including inputs, trigger logic, and implementation challenges germane to CAS alert thresholds.

2. Verma AA, Pou-Prom C, McCoy LG, Murray J, Nestor B, Bell S, … Mamdani M. *Developing and validating a prediction model for death or critical illness in hospitalized adults: an opportunity for human–computer collaboration.* Critical Care Explorations. 2023;5(5):e0897. Details rigor in model development/validation and clinician–AI collaboration; a methodological template for interpreting CAS-associated mortality signals in real-world settings.

CONTACT INFORMATION

Presenter: Yih-An Chen (Quality Management Center, Tri-Service General Hospital, NDMC, Taipei).Corresponding: Rong-Chong Wu (QMC, TSGH).Co-authors: Chueng-He Lu; Teng-Wei Chen; Yuan-Hao Chen; Tzu-Yu Hu; Li-Fen Yeh; Sy-Jou Chen.Inquiries: Quality Management Center, Tri-Service General Hospital, Taipei.

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

三軍總醫院 Tri-Service General Hospital

Intelligent Monitoring for Outpatient Satisfaction: A Data-Driven Approach from Questionnaire Surveys to Visualization Dashboards

Y-H. Wang[1], Y-A. Chen[1], L-F. Yeh[1], M-Z. Luo[1], P. Liu[1], S-J. Chen[1,2], T-W. Chen[3], Y-H. Chen[4,1]

[1]Quality Management Center, [2]Department of Emergency Medicine, [3] Division of General Surgery, [4] Department of Neurosurgery, Tri-Service General Hospital, Taipei City, Taiwan

P254

INTRODUCTION

Outpatient care is a vital component of healthcare delivery, yet many institutions face challenges in monitoring and improving patient experiences in a timely manner. Existing knowledge highlights the importance of patient-centered strategies, efficient workflows, and continuous feedback loops to optimize healthcare services. Leveraging both survey data and real-time analytics offers a potential avenue for enhancing quality, safety, timeliness, and patient satisfaction.

AIM

The study aimed to evaluate outpatient satisfaction and identify factors influencing satisfaction and return visits, and implement an intelligent dashboard for real-time data monitoring, thereby informing targeted interventions to improve outpatient healthcare quality and efficiency.

METHOD

The questionnaire covered healthcare background, demographic information, and service performance, including the care process, service attitude, and facility environment. Open-ended questions gathered qualitative feedback. Reliability testing indicated a Cronbach's alpha of 0.827. Data were collected via the hospital mobile application (APP), website, and paper-based questionnaires, yielding 754 valid responses. Results were visualized using Power BI (Power Business Intelligence). Statistical analyses (t-tests, chi-square tests, one-way analysis of variance [ANOVA], and linear regression) were performed to explore associations between various factors (e.g., demographics, waiting times, trust in physician) and satisfaction outcomes. Ethical approval was obtained from the institutional review board of the participating center.

RESULTS

1. According to the visualization dashboard, 91.5% of respondents were satisfied with their outpatient service, with an overall average satisfaction score of 86.8.(Figure 1)
2. The "Healthcare Process" dimension scored the highest (90.3), highlighting strong patient trust in physicians' professionalism and nursing staff services. In contrast, satisfaction regarding waiting times for billing/payment and medication pickup was relatively lower. (Figure 1)

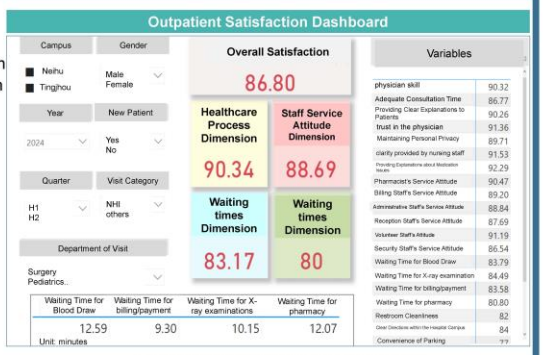


Figure.1: Distribution of Outpatient Satisfaction Dashboard

3. Univariate analyses showed that sociodemographic characteristics (e.g., patient identity status), healthcare processes (e.g., physician skill, trust in the physician, clarity provided by nursing staff), and waiting times (e.g., for X-ray examinations, billing/payment, medication pickup) were significantly correlated with overall satisfaction and willingness to revisit the hospital.(Table1)
4. Further linear regression analysis revealed that the most influential factors were physician skill (91.5), trust in the physician (91.4), waiting time for X-ray examinations (82.3), and waiting time for billing/payment (78.2). Additionally, Open-ended feedback emphasized the need for multiple payment methods (e.g., app-based, self-service kiosks) and reduced waiting times for medication pickup.(Table2)

Variables	r	p-value
medication pickup vs. Overall Satisfaction	-0.222	<0.001
trust in the physician vs. Overall Satisfaction	0.460	<0.001
clarity provided by nursing staff vs. Overall Satisfaction	0.411	<0.001
waiting time for X-ray examinations vs Overall Satisfaction	-0.158	0.006
waiting time for payment vs Overall Satisfaction	-0.222	<0.001

Table.1: Correlation between Overall Satisfaction and Service Variables

Variables	β	SE	t	p-value
physician skill	3.444	1.184	2.909	0.004
trust in the physician	6.302	1.230	5.124	<0.001
waiting time for X-ray examinations	-.148	.064	-2.293	0.023
waiting time for payment	-.140	.056	-2.509	0.013

Note: Dependent variable: Overall Satisfaction. $R^2 = 0.275$

Table.2: Linear Regression Analysis for Predictors of Overall Patient Satisfaction

CONCLUSIONS

These findings indicate that professional healthcare delivery is a core strength, while improving workflow efficiency could further enhance outpatient satisfaction. Implementing a real-time intelligent dashboard allows healthcare administrators to swiftly identify issues and develop targeted interventions, promoting patient-centered care and improved service quality.

ACKNOWLEDGEMENT

We extend our gratitude to the entire team of the Quality Management Center at Tri-Service General Hospital, National Defense Medical University, for their valuable assistance and the research project (TSGH-B-114018) for continuous support, which enabled the successful completion of this study and the meaningful presentation of its results.

REFERENCES

1. Buttigieg SC, Pace A, Rathert C. Hospital performance dashboards: a literature review. J Health Organ Manag. 2017;31(3):385–406.
2. Daniel RM, April S, Tyler S, Dean FS, Hardeep S. Dashboards for visual display of patient safety data: a systematic review. BMJ Health Care Inform. 2021 Oct 6;28(1):e100437.
3. Crow R, et al. The measurement of satisfaction with healthcare: implications for practice from a systematic review of the literature. Health Technol Assess. 2002;6:1–244.

CONTACT INFORMATION

For further information or inquiries regarding this study, please contact: Quality Management Center, Tri-Service General Hospital ,Yi-hung Wang.

Email: yihung0411@gmail.com

Phone: +886-2-87923311 #16358

Address: No.325, Chenggong Rd.,Sec.2, Neihu Dist., Taipei City, Taiwan.

Optimizing Medical Quality Management： Implementing Power BI to Enhance Data-Driven Decision-Making in Hospitals

Optimizing Medical Quality Management: Implementing Power BI to Enhance Data-Driven Decision-Making in Hospitals

P374

L-F. Yeh [1], Y-A. Chen[1], Y-H. Wang[1], R-C. Wu[1], T-Y. Hu[1], T-W. Chen[2], Y-H. Chen[3] and S-J. Chen[1, 4]
[1]Quality Management Center, [2]Division of General Surgery, [3]Department of Neurosurgery, [4]Department of Emergency Medicine, Tri-Service General Hospital, Taipei, Taiwan

INTRODUCTION

Monitoring medical quality indicators is essential for effective hospital quality management. At Taiwan's Tri-Service General Hospital, 416 quality indicators are tracked, including medical workforce capacity, Taiwan Clinical Performance Indicators (TCPI), and the Quality Indicators Project (QIP). Historically, data collection relied on manual processes, which were time-consuming, labor-intensive, and prone to delays. Recognizing the need for a more efficient and accurate system, the hospital selected Microsoft Power BI to enhance real-time data analysis and reporting, thereby improving decision-making and overall hospital performance.

This study aimed to assess the implementation of a Business Intelligence (BI) tool—Microsoft Power BI—to digitalize medical quality indicators and improve the accessibility, accuracy, and timeliness of data-driven decisions in hospital management.

METHOD

Kotter's Change Management Theory guided the implementation process.

create a sense of urgency	build a guiding coalition	form a strategic vision and initiatives
• Explain to hospital leaders that Power BI enhances quality management and data accuracy, highlighting technological innovation as key for future development.	• In 2021, a dedicated team composed of the Information Department, Outpatient Services, and the Medical Quality Group conducted pilot testing.	• A clear vision was formulated, emphasizing the benefits of real-time analytics for hospital staff and ensuring a systematic deployment and training plan.
communicate the change vision	**enable actions by removing barriers**	**generate short-term wins**
• Introduce the benefits of Power BI to staff through hospital meetings, organize training sessions, and cultivate employees within each unit as seed personnel.	• Provide technical support and dashboard building, provide consultation for issues, and review dashboards in meetings.	• Organize a Power BI application competition in 2024 to motivate active staff participation.

RESULTS

1. **Indicator Digitalization**: Through iterative development and demand-driven interviews to refine requirements, the hospital created 178 dashboards. The dashboard integrates multiple medical systems (such as HIS, ICCA, KPI platform, and patient safety notification system) and automatically updates reports on a regular basis to reduce manual processing. As a result, 60.1% of indicators were fully digitalized; the remainder required partial manual input by designated indicator managers.
2. **Improved Performance**: The dashboard is designed with an abnormal warning function, which displays reminders in colors according to thresholds to detect high-risk trends early. For example, TCPI and QIP indicator dashboards display alert lights based on thresholds and target values. Additionally, there are cards showing the number of each alert light (Figure 1), as well as drill-down trend charts for each indicator. For key evaluation indicators, dashboards have been completed for monitoring medical staff workload (Figure 2), and respiratory care center units (Figure 3), among others. The proportion of TCPI indicators exceeding the average performance of other medical centers increased from 68.3% in 2023 to 70.4% in 2024.
3. **Staff Engagement**: Between 2023 and 2024, 14 training sessions involved 325 participants, driving widespread adoption of the new system. Additionally, 17 hospital teams joined the 2024 Power BI competition (Figure 4,5), creating innovative dashboards that enhanced departmental quality management processes. For example, the Health Insurance Information Real-Time Upload Monitoring Dashboard (Figure 6) enables real-time monitoring, drill-down analysis, and exception management. Through these functionalities, image upload rates consistently meet targets.

Figure 1. Quality Indicators Project

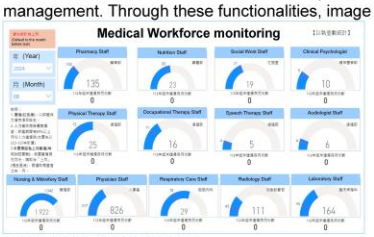


Figure 2. Medical Workforce monitoring

Figure 3. RCC (Respiratory Care Center) Indicator Monitoring


Figure 4. 2024 Power BI competition

Award	Unit	Proposal Topic
Champion	Medical Information Office	Real-time upload of health insurance Information monitoring
Runner-up	Department of Pharmacy	Intelligent Analysis of Prescription Patterns and Trends in Anti-cancer and Antibiotic Use
	Department of Pharmacy	Data-driven Workflow Improvement Solutions to Enhance Clinical Efficiency and Patient Medication Safety
Third Place	Community Nursing Center	Using Power BI for Real-time Monitoring of Hospital Accreditation Indicators to Improve Timeliness and Accuracy
	Infection Control Center	Analysis of Infection-related Data in Medical Care
	Ward 15	Assisted by Power BI to Achieve New Heights in Quality Nursing
Honorable Mention	Nursing Department	Reporting and Analysis of Nursing-related Abnormal Events
	Nephrology Department	Analysis of Effectiveness of Pre-dialysis Care in End-stage Kidney Disease
	Gastroenterology Department	Management and Quality Control of Gastrointestinal Endoscopy Data
	Ward 51	Intelligent Statistical Analysis of Long-term Care Evaluation Data

Figure 5. 2024 Power BI competition Winners List

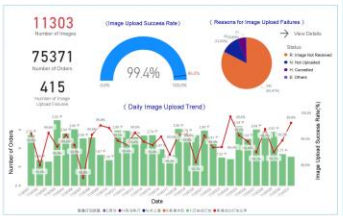


Figure 6. Real-time upload of health insurance Information monitoring

CONCLUSIONS

Implementing Power BI significantly improved the accuracy and accessibility of hospital data, streamlined administrative processes, and fostered a data-driven culture. By systematically tracking and analyzing quality indicators, Tri-Service General Hospital has strengthened its capacity for timely, evidence-based decision-making. Future steps will focus on expanding dashboard functionalities, evaluating potential cost-benefits, and incentivizing high-performing departments to promote continuous quality improvement.

Leveraging Information Technology in Shared Decision Making: Enhancing Patient Engagement and Healthcare Decision Quality

T-Y. Hu[1], Y-A. Chen[1], Y-H. Wang[1], C-Y. Li[1], S-C. Li*[1], S-J. Chen[1,2], Y-H. Chen[3], T-W. Chen[4]
[1]Quality Management Center, [2]Department of Emergency Medicine, [3]Department of Neurosurgery, [4]Division of General Surgery4Department of Neurosurgery, Tri-Service General Hospital, Taipei, Taiwan

P 287

INTRODUCTION

Since 2016, Taiwan has promoted Shared Decision Making (SDM), integrating digital tools such as mobile applications, websites, and multimedia to enhance patient understanding of treatment options. These technologies have improved decision support through interactive questionnaires and multimedia, optimized communication via telemedicine and remote SDM participation, and increased administrative efficiency through automated SDM documentation.

This study evaluates the impact of an IT-based SDM system on decision efficiency, patient engagement, and healthcare provider workflow in a hospital setting.

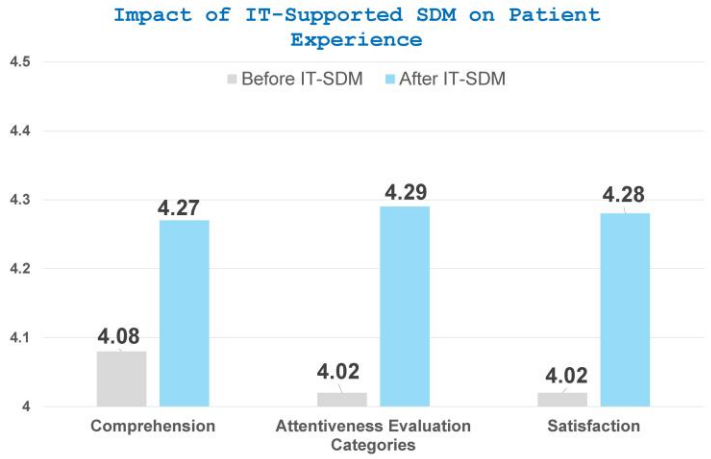
METHOD

Since late 2022, the hospital has implemented an IT-based SDM platform to streamline decision-making by assessing patient preferences, generating personalized QR codes, and enabling remote access to SDM content. To encourage adoption, an internal SDM competition was launched in 2024, evaluating teams based on teamwork, simulated SDM execution, and clinical implementation. Performance was assessed through structured role-play scenarios and real-world SDM case reviews. Patient feedback was collected using a Likert scale survey conducted in 2023 and 2024, measuring improvements in decision understanding, physician consideration of patient concerns, and overall satisfaction.

Online courses	Face-to-face courses
	
knowledge and concepts, tool development, and clinical application.	workshops on tool development, training for decision guidance coaches, inviting experts from the Decision Support Committee

RESULTS

IT-supported SDM improved patient engagement and satisfaction. Patient comprehension scores increased from 4.08 to 4.27, while physician attentiveness to patient concerns rose from 4.02 to 4.29. Overall satisfaction with SDM improved from 4.02 to 4.28. Patients reported a greater understanding of treatment risks and benefits, enhanced communication with healthcare providers, and increased confidence in decision-making. A graphical representation of these findings further illustrates the positive impact of digital SDM tools on decision quality and patient engagement.



CONCLUSIONS

The integration of IT in SDM has significantly improved patient understanding, strengthened communication between healthcare providers and patients, and enhanced overall satisfaction with the decision-making process. By enabling repeated access to medical information and reducing the administrative burden on healthcare staff, digital tools have facilitated a more informed and patient-centered approach to medical decision-making. However, challenges remain, including disparities in digital literacy, persistent physician-centered decision-making cultures, and usability concerns among elderly patients. Continuous system refinement, guided by stakeholder feedback, will be necessary to optimize SDM for diverse patient populations. Overall, IT-supported SDM represents a valuable innovation in improving decision quality, fostering effective communication, and promoting patient engagement in healthcare decisions.

REFERENCES

Chen, H., & Wang, J. (2020). Development of a mobile shared decision-making integration platform. Journal of Medical Informatics, 35(4), 245-260.
Smith, R., & Johnson, K. (2021). Shared decision making: Concepts and practice. International Journal of Healthcare Management, 28(2), 113-125.
Lin, T., & Chang, Y. (2022). Research on the impact of shared decision making on the quality of medical relationships.Journal of Health Communication, 40(1), 89-104.

CONTACT INFORMATION

Tzu-Yu, Hu
Quality Management Center
Tri-Service General Hospital, National Defense Medical CenterAddress: No. 325, Sec. 2, ChenggongRd., NeihuDist., Taipei City 114, Taiwan
Email:webber0210@gmail.com
Phone: +886-2-8792-3311#16354

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Integrating Leadership Engagement and Frontline Contribution: The Impact of Management by Walking Around on Patient Safety Culture—Evidence from a Medical Center

C-Y. Li[1], P. Liu [1] , Y-A. Chen[1] , T-Y. Hu[1] , L-F. Yeh[1] , Y-H. Wang[1], R-C. Wu[1], S-C. Li[1], M-Z. Luo[1], S-J. Chen [1,2]
1 Quality Management Center, Tri-Service General Hospital, Taipei City, Taiwan
2 School of Medicine, National Defense Medical Center, Taipei City, Taiwan

P116

INTRODUCTION

Patient safety is vital in modern healthcare due to the high-risk nature of clinical practice. The World Health Organization emphasized in 2021 that fostering a positive safety culture prevents adverse events. Taiwan's Ministry of Health and Welfare incorporated "leadership-driven safety culture" into hospital accreditation, encouraging structured strategies. Traditional safety management relies on post-event reporting, which may overlook frontline concerns. Management by Walking Around (MBWA) enhances leadership engagement, two-way communication, and team morale, reinforcing patient safety.

AIM

This study evaluated MBWA's impact on patient safety culture in a tertiary medical center by assessing safety indicators, qualitative feedback, and key improvement areas to develop sustainable safety strategies.

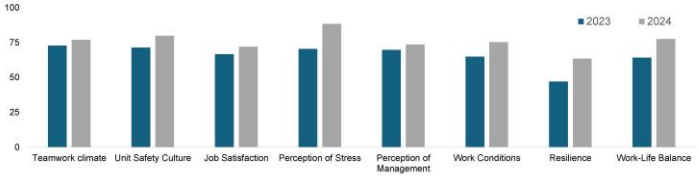
METHOD

a) A hospital-wide MBWA program was implemented under the Taiwan Patient Safety Culture Survey (TPSC).
b) Senior leaders conducted monthly department visits, interviewing randomly selected frontline staff to discuss safety risks, communication, workflow, and leadership.
c) Feedback was categorized (immediate resolution, system optimization, policy/resource adjustment) and tracked to closure.
d) Patient safety culture surveys (JCT) were conducted in 2023 and 2024, with T-tests ($p < 0.05$) assessing changes and thematic analysis identifying qualitative insights.

RESULTS

a) In 2024, 14 departmental visits gathered insights from 37 staff members, resulting in 52 improvements.
b) The most frequent issues were cross-team coordination (26.9%), staff dispatch efficiency (13.5%), information system optimization (11.5%), and workforce allocation/training (9.6%).
c) Comparison of safety culture indicators (2023 vs. 2024) showed significant improvements ($p < 0.05$), with teamwork climate increasing from 72.82% to 76.87% (+4.05%), unit safety culture climate from 71.33% to 79.81% (+8.48%), job satisfaction climate from 66.60% to 71.99% (+5.39%), and perception of management from 66.69% to 73.65% (+5.39%).
d) Qualitative feedback reinforced the impact of leadership engagement. A nurse noted, "Having the vice superintendent visit showed our concerns matter," while a physician reported, "A long-standing IT issue was finally resolved after being escalated during an MBWA visit."

Dimension \ Year	2023	2024	P value
Teamwork climate	72.82	76.87	< 0.001
Unit Safety Culture	71.33	79.81	< 0.001
Job Satisfaction	66.6	71.99	< 0.001
Perception of Stress	70.45	88.36	< 0.001
Perception of Management	69.69	73.65	< 0.001
Work Conditions	64.88	75.23	< 0.001
Resilience	47.08	63.43	< 0.001
Work-Life Balance	64.13	77.45	< 0.001



Comparative Overview of the Taiwan Patient Safety Culture Surveys: 2023 and 2024

CONCLUSIONS

MBWA bridged hierarchical gaps, improved visibility, and strengthened communication, fostering a proactive patient safety culture. It enhanced collaboration, optimized workflows, and improved team cohesion.

Expanding MBWA to outsourced personnel and integrating AI-driven analytics for risk detection could amplify its effectiveness.

More than a leadership tool, MBWA is a catalyst for cultural transformation, embedding patient safety into daily practice.

ACKNOWLEDGEMENT

We sincerely thank the senior leadership of the Tri-Service General Hospital for their steadfast support, as well as the collaboration from all clinical and administrative departments. Their collective efforts made the implementation of the MBWA program possible, contributing meaningfully to the enhancement of healthcare resilience and quality of care.

REFERENCES

Ferorelli, D., Zotti, F., Tafuri, S., Pezzolla, A., & Dell'Erba, A. (2016). Patient Safety Walkaround: a communication tool for the reallocation of health service resources: An Italian experience of safety healthcare implementation. *Medicine, 95*(41), e4956. https://doi.org/10.1097/MD.0000000000004956

Foster, M., Mha, B. S., & Mazur, L. (2023). Impact of leadership walkarounds on operational, cultural and clinical outcomes: a systematic review. *BMJ Open Quality, 12*(4), e002284. https://doi.org/10.1136/bmjoq-2023-002284

Global Patient Safety Action Plan 2021-2030. (n.d.). Word Health Organization. (2021, August 3). https://www.who.int/teams/integrated-health-services/patient-safety/policy/global-patient-safety-action-plan

Wu, H. H., Lee, Y. C., Huang, C. H., & Li, L. (2023). Healthcare professional's perception of patient safety assessed by the hospital survey on patient safety culture in Taiwan: a systematic review, *The TQM Journal, 35*(3), 615-629. https://doi.org/10.1108/TQM-11-2021-0317

Enhancing Shared Decision-Making in Atopic Dermatitis Management：A Comparative Study of Educational Pamphlet versus Pamphlet Plus Video Approach

Enhancing Shared Decision-Making in Atopic Dermatitis Management: A Comparative Study of Educational Pamphlet versus Pamphlet Plus Video Approach

Shou-En Wu[1], Chih-Tsung HUNG[1]

1 Department of Dermatology, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan

ISQUA2025

P268

INTRODUCTION

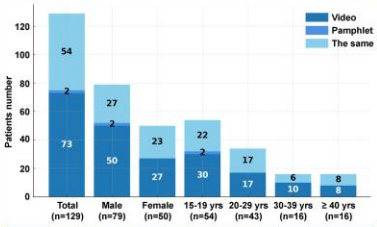
Shared decision-making (SDM) is becoming increasingly important in dermatology, particularly where multiple treatment alternatives exist under preference-sensitive conditions [1]. However, **patients' lack of sufficient disease knowledge remains a barrier** to implementing SDM effectively. Dermatology is particularly well-suited for SDM as several diseases encompass various treatment options, with optimal strategy often determined by patient experience rather than objective disease severity [2,3].

AIM

- Evaluate the **impact of video supplementation** on patient disease knowledge scores.
- Assess patient preferences and satisfaction with different educational modalities.
- Analyze effectiveness across demographic subgroups (gender and age).
- Provide **evidence-based educational strategies to improve shared decision-making** in dermatology practice.

RESULTS

Disease knowledge	Pamphlet	Pamphlet + Video	*p* value
Score	77.42 ± 17.17	94.84 ± 10.20	<0.001
Gender			
Male	78.95 ± 17.98	95.26 ± 9.79	<0.001
Female	75 ± 15.88	94.17 ±11.01	<0.001
Age Group			
15-19 yrs	74.62 ± 13.34	93.08 ± 11.23	<0.001
20-29 yrs	80 ± 23.39	97 ± 7.33	0.001
30-39 yrs	82.5 ± 12.82	95 ± 14.14	0.095
≧40 yrs	75 ± 14.14	95 ± 9.26	0.007



Satisfaction with SDM Process
(5-point Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)

Helped me understand the treatment options I can choose from	4.458
Provided me opportunities to ask questions to healthcare providers	4.458
Promoted my participation in the medical process	4.458
Enhanced communication between me and healthcare providers	4.417
Made me more confident in healthcare providers' treatment for me	4.458
Reduced my anxiety	4.417

- **Significant Overall Improvement**
  - 129 patients completed (86.7% response rate)
  - Pamphlet + Video score: 94.84 ± 10.20
  - Pamphlet-only score: 77.42 ± 17.17
  - Disease knowledge scores improved by 18.4% ($p < 0.001$)
- **Gender Analysis**
  - Male: 78.95 → 95.26 points ($p < 0.001$)
  - Female: 75.00 → 94.17 points ($p < 0.001$)
  - Both genders showed significant improvement
- **Age Group Analysis**
  - 15-19 years: 74.62 → 93.08 points ($p < 0.001$)
  - 20-29 years: 80.00 → 97.00 points ($p = 0.001$)
  - 30-39 years: 82.50 → 95.00 points ($p = 0.095$)
  - *Only non-significant group
  - ≥40 years: 75.00 → 95.00 points ($p = 0.007$)
- **Patient Preferences**
  - 56.6% preferred pamphlet + video
  - 1.6% preferred pamphlet only
  - 41.8% had no preference
- **Satisfaction Scores**
  - All SDM aspects rated (4.4-4.5 on 5- point scale)
  - These findings support the "education-as-intervention" model in AD [7].

METHOD

Study Setting: Prospective study at Tri-Service General Hospital's dermatology clinic (August 2021-October 2024).
Materials: Educational pamphlet and 8-minute video developed based on Taiwanese Dermatological Association consensus [4] and European guidelines [3,5,6].
Participants: 149 eligible AD patients recruited; 129 completed assessments.
Design: Patients completed identical five-question knowledge tests after pamphlet reading and after video viewing.
Analysis: Paired t-tests comparing knowledge scores between interventions.

CONCLUSIONS

Clinical Implications: Adding educational video significantly enhanced patients' understanding of AD and treatment options, aligning with previous successful experiences using video as patient decision aids in adults [8] and caregivers of pediatric patients [9]. This effectively addresses the barrier of insufficient patient disease knowledge in SDM.

Future Directions: This approach provides a solid foundation for implementing SDM in dermatology practice and supports integrating multimedia educational tools into routine patient-centered care.

ACKNOWLEDGEMENT

We gratefully acknowledge the patients who participated in this study and the attending physicians and staff in the Department of Dermatology at Tri-Service General Hospital for their support in implementing this educational intervention and data collection.

This study was supported by grants from the Tri-Service General Hospital Research Foundation (TSGH-E-112203). The funders had no involvement in study design, data collection, analysis, publication decisions, or manuscript preparation.

REFERENCES

1. Elwyn G, Frosch D, Thomson R, Joseph-Williams N, Lloyd A, Kinnersley P, et al. Shared decision making: A model for clinical practice. J Gen Intern Med 2012;27:1361-7. **2.** Elwyn G, Laitner S, Coulter A, Walker E, Watson P, Thomson R. Implementing shared decision making in the NHS. BMJ 2010;341:c5146. **3.** Wollenberg A, Barbarot S, Bieber T, Christen-Zaech S, Deleuran M, Fink-Wagner A, et al. Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: Part I. J Eur Acad Dermatol Venereol 2018;32:657-82. **4.** Chan TC, Wu NL, Wong LS, Cho YT, Yang CY, Yu Y, et al. Taiwanese dermatological association consensus for the management of atopic dermatitis: A 2020 update. J Formos Med Assoc 2021;120:429-42. **5.** Wollenberg A, Barbarot S, Bieber T, Christen-Zaech S, Deleuran M, Fink-Wagner A, et al. Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: Part II. J Eur Acad Dermatol Venereol 2018;32:850-78. **6.** Ziade N, Arayssi T, Elzorkany B, Daher A, Karam GA, Jbara MA, et al. Development of an educational video for self-assessment of patients with RA: Steps, challenges, and responses. Mediterr J Rheumatol 2021;32:66-73. **7.** Krakowski AC, Eichenfield LF, Dohil MA. Management of atopic dermatitis in the pediatric population. Pediatrics 2008;122:812-24. **8.** Armstrong AW, Kim RH, Idriss NZ, Larsen LN, Lio PA. Online video improves clinical outcomes in adults with atopic dermatitis: A randomized controlled trial. J Am Acad Dermatol 2011;64:502-7. **9.** Niebel G, Kallweit C, Lange I, Fölster-Holst R. Direct versus video-aided parent education in atopic eczema in childhood as a supplement to specialty physician treatment. A controlled pilot study. Hautarzt 2000;51:401-11.

CONTACT INFORMATION

Chih-Tsung Hung, M.D. Ph.D.
Associate Professor Department of Dermatology, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan. (886)2-6606-0115
barrypig72@gmail.com

Reducing the incidence of pressure injuries in neurosurgical patients undergoing prone position surgery.

Reducing the Incidence of Pressure Injuries in Neurosurgical Patients Undergoing Prone Position Surgery

H. H. WU[2], Y. L. LU[2], Y. F. WEI[2], Y. J. YANG[1], D. Y. HUENG[1], H. C. LIAO[1], C. Y. PAO[2], C. H. TANG[2], Y. C. LIAO[3] and C. Y. THAI[3]

1 Department of Neurological Surgery, Tri-Service General Hospital, NDMU, Taipei, Taiwan
2 Department of Nursing, Operation Room, Tri-Service General Hospital, NDMU, Taipei, Taiwan
3 Department of Anesthesia , Tri-Service General Hospital, NDMU, Taipei, Taiwan

P-045

INTRODUCTION

In alignment with Taiwan's 2024-2025 Hospital Healthcare Quality and Patient Safety Goals, our unit aims to enhance surgical safety. Our 2023 pressure injury incidence rate of 15.86% in neurosurgical procedures was significantly higher than the peer hospital average of 5.2%. This study's objective is to reduce this rate to below 5%, thereby improving patient safety and the quality of perioperative care.

AIM

For Patients：Minimizing unexpected injuries and pressure-related damage caused by the prone position, thereby reducing postoperative complications and discomfort.
For the Medical Team：Increasing the medical team's awareness of preventing pressure injuries in patients undergoing prone surgery. This helps to strengthen teamwork and communication, ultimately improving the overall quality of care.
For the Hospital：**Improving Care Quality and Satisfaction:** Enhancing the quality of care during surgery leads to better patient health and satisfaction post-operation. **Reducing Medical Costs:** Lowering the expenses for dressing changes to treat pressure injuries and avoiding additional medical costs. **Strengthening Care Processes:** Reducing the occurrence of unexpected pressure injuries and preventing additional nursing costs and wasted resources.

METHOD

Based on a clinical analysis, several issues were identified: insufficient staff awareness of pressure injury prevention, a lack of regular massage and protective dressings, and problems with equipment.
To address this, we developed a standardized "Surgical Positioning Protocol" by reviewing literature and holding team discussions. The intervention included:
Training: Creating on-the-job training, simulation courses, and educational posters.
Equipment: Improving auxiliary equipment and innovating with new pressure-relief towels.
Audits: Implementing regular audits to ensure compliance.
The effectiveness was evaluated using statistical analysis. Ethical considerations, such as patient privacy and transparent communication with staff and patients, were also maintained.

RESULTS

By November 2024, after the implementation of intervention measures, the incidence of intraoperative pressure injuries in neurosurgical prone position surgeries significantly decreased from 15.86% to 2.2% (Table 1). The incidence rates of pressure injuries in all body regions showed a decline, with the hip/buttocks, upper limbs, thoracolumbar region, and lower limbs dropping to 0%, while the head region decreased from 4.85% to 2.2%(Table 1). Additionally, the healthcare staff's awareness score regarding pressure injuries improved from a pre-test score of 62.9 to a post-test score of 81.6.

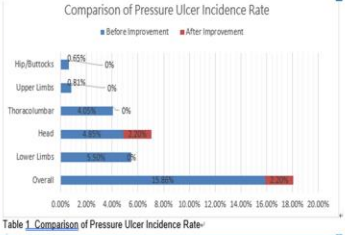


Table 1. Comparison of Pressure Ulcer Incidence Rate

CONCLUSIONS

The project's innovative approach introduced a trial pressure-relief towel and a revised Standard Operating Procedure. While the towel has not yet been widely implemented and requires ongoing evaluation of its effectiveness, the revised SOP has already demonstrated significant results. Additionally, the educational initiatives have successfully enhanced staff awareness. Moving forward, further implementation of PDCA cycles and continuous monitoring will be necessary to address any remaining issues and challenges.

ACKNOWLEDGEMENT

We would like to thank all the staff of the Nursing Department, Operating Room, Anesthesia Department, and Neurosurgery Department of the Tri-Service General Hospital, National Defense Medical University for their support and assistance. Their unwavering dedication and collaborative efforts were instrumental in the success of this project and in achieving our goals for patient safety.

REFERENCES

1. Association of periOperative Registered Nurses. (2023). Guideline for prevention of perioperative pressure injury. In: Guidelines for perioperative practice. Denver, CO: AORN, Inc.
2. Kim, J. M., Lee, H., & Ha, T. (2022). Risk factors for pressure Injuries in surgical patients: A Systematic Review and Meta-analysis. Journal of Clinical Nursing, 31(3-4), 286-299.
3. Lin, S., Chen, Z., & Wang, K. (2020). Prevention of perioperative pressure injuries in patients undergoing prone position surgery. Journal of PeriAnesthesia Nursing, 35(4), 426-432. https://doi.org/10.1016/j.jopan.2019.12.008
4. National Pressure Injury Advisory Panel (NPIAP). (2019). NPIAP Pressure Injury Stages. https://npiap.com/page/PressureInjuryStages

CONTACT INFORMATION

MICKEYWU0630@YAHOO.COM.TW

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Enhancing Nursing Shift Handover Process Through Lean Management and AI Tool Integration

C-J. Chiu [1,2], S-H. Ou [1], M-J. Chen [1] C-J. Tsai [1] and H-W.Lai [1]
1 Nursing Department of Tri-Service General Hospital, Taipei, Taiwan
2 Graduate Institute of Medical Sciences, National Defense Medical University, Taipei, Taiwan

P153

INTRODUCTION

AIM

To improve shift handover efficiency, our nursing department adopted lean management across all wards.
The goals were:

☐ Reduce average handover time from 47.6 minutes → under 30 minutes (within allotted work hours).

☐ Lower the percentage of handovers over 30 minutes from 63.3% → below 40%.

Through standardizing procedures and eliminating waste, handover became more streamlined and time-efficient.

RESULTS

Improvement Measures

Streamlined Team Formation
Establish simplified handover teams in Internal Medicine, Surgery, and ICU to improve communication focus.

Data-Driven Analysis
Conduct a literature review and design questionnaires; select complex ward cases for simplification evaluation.

Process Measurement & Root Cause Analysis
Measure actual handover times in pilot wards and conduct root cause analysis of prolonged handovers.

Pilot & Consensus Building
Draft simplified processes, reach consensus with pilot wards, and test with selected patients.

Technology Integration & Standardization
Integrate ChatGPT-4 with the 5S framework (perfusion, ventilation, infection, nutrition, sedation) and apply ISBAR structures to consolidate key points. Establish hospital-wide seed groups.

Validation & Implementation
Conduct comprehensive tests and validation; announce standardized handover structure and timeline.

Nursing Department Internal Improvement Measures
1. Further simplify handover content (ICU interim records, discharge day).
2. Divide tasks within the unit to handle clinical work during handovers (to avoid idle waiting due to different staffing numbers across shifts).
3. Establish a system for unit-level self-audit and mentoring of new staff.

Cross-Department Improvement Measures
1. Evaluate the possibility of assistance from other professions during handovers, such as administrative assistants, care assistants, nurse specialists, nurse managers, and respiratory therapists.
2. Develop a plan for returnering non-urgent phone messages.
3. Promote the practice of avoiding bed inquiries during handover (in line with the non-urgent phone message plan).
4. Since laptop wireless networks are slower, advocate for the use of desktop computers for handover.
5. Negotiate notification methods with examination departments and

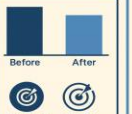
RESULTS

PROCESS IMPROVEMENT:
- Swim Lane Chart reduced handover steps from 7 → 4
- 2 steps = Value-adding activities
- 1 step = Necessary but non-value-adding wait
- Non-value-adding steps reduced 4 → 1
- Total process time reduced by 55.7%

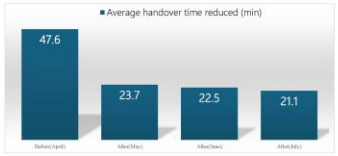
Total process time reduced by 55,7 %

KEY PERFORMANCE INDICATORS
- Average handover time duced from 47.6 min → 21.1 min
- 2 steps = Value-adding activities
- 1 step = Necessary but non-value-adding wait
- Total process time reduced by 55%

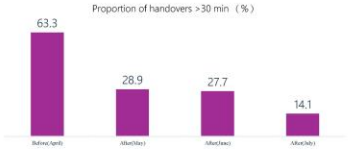
Target achievement rate: 211.1%



KPI	Before	Target	After
Average Handover Time (minutes)	47.6 min	< 30 min	21.1 min
Percentage of Handovers >30	63.3%	< 40%	14.1%

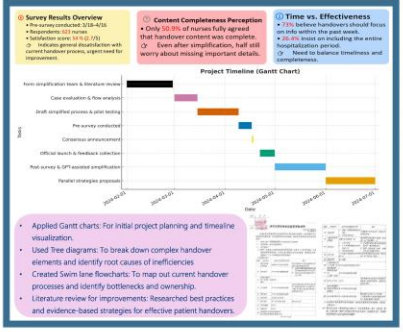


Improve outcomes
2024.04~2024.07 Average handover time reduced （min）



Improve outcomes
2024.04~2024.07 Proportion of handovers >30 min （%）

METHOD



CONCLUSIONS

Conclusion

Implementation of *lean* management optimized the nursing shift handover process, minimizing wasted time and eliminating inconsistent content requirements. These improvements enhanced efficiency, reduced pressure on new nurses, and strengthened patient safety.

Future Directions

The next phase will integrate AI-driven structured bontent recognition to automate key handover elements, further shorten handover duration, reduce staff workload, and provide a scalable model applicable to global nursing workforce challenges.

ACKNOWLEDGEMENT

Nurses — for their cooperation and assistance

Team Members — for their joint efforts

Research Grant 2025: TSGH_D_114150
Study Topic: "Investigating Factors Affecting the Quality of Nursing Handovers and Individual Efficacy"

REFERENCES

Johnson, M., Sanchez, P., & Langdon, R. (2014). The impact of clinical handover on patient outcomes: A systematic review. *International Journal of Nursing Studies, 51*(12), 165–180. https://doi.org/10.1016/j.ijnurstu.2013.07.018

Ting, H. Y., Tsai, M. L., & Hsiao, S. Y. (2019). Applying lean management to improve nursing handover efficiency: A quality improvement project. *Journal of Nursing Care Quality, 34*(2), E1–E7. https://doi.org/10.1097/NCQ.0000000000000358

World Health Organization. (2021). *Handbook for national quality policy and strategy: A practical approach for developing policy and strategy to improve quality of care.* Geneva: WHO Press.

Li, X., Zhang, Y., & Chen, J. (2022). Artificial intelligence–assisted nursing documentation and handover: A scoping review. *Journal of Medical Internet Research, 24*(11), e38162. https://doi.org/10.2196/38162

CONTACT INFORMATION

National Defense Medical Center
Tri-Service General Hospital

Chiu, Chun-Jung
Department of Nursing
Supervisor

No. 325, Sec. 2, Chenggong Rd.,
Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
TEL: 886-2-8792-3311 ext 12940
Mobile: +886-973727670
E-mail: ellen661015@gmail.com

Enhancing Medical Clerks’ Emergency Preparedness and Well-being： Integrating Emergency Manual into High-Fidelity Simulation-Based Training

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Enhancing Medical Clerks'Emergency Preparedness and Well-being: Integrating Emergency Manuals into High-Fidelity Simulation-Based Training

P336

Yung-Chi Hsu*[1], Yao-Chia Liu[1], Chun-Lun Hsu[2], Cheng-Yi Chao[3], Jen-Jiuan Liaw[4]
[1]School of Medicine, [2]Center for General Education, National Defense Medical University, [3]Department of Clinical Pharmacy, National Defense Medical University, Tri-Service General Hospital, [4]School of Nursing, National Defense Medical University, Taipei, Taiwan

INTRODUCTION

- In Taiwan's six-year MD program, the **Second-year clerks (C2)** face pivotal **challenges** as they transit from undergraduate medical education to the demanding role of **postgraduate year (PGY) residents**.
- Significant pressures on C2, who may strive to demonstrate six core competencies developed by ACGME, especially delivering **patient care** and **managing health problems**.
- To meet these challenges, this study integrates **Emergency Manual (EM)** into **High Fidelity Simulation (HFS) Emergent Management Training (EMT)** guided by **Team Resource Management (TRM) principles.**

Medical Student
Second-year clerks (C2)

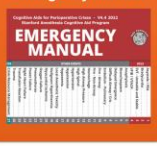
Challenges
Stress ↑
Well-being ↓
Burnout ↑

Strategy

Simulation Based Strategy

+

Emergency Manual



PGY
Residents

Accreditation Council for Graduate Medical Education

6 core competencies

Patient Care (PC)

AIM

- Aims to examine learning effects of integrating EM into HFS-EMT on C2-students learning outcomes, and well-being.

METHOD

- We recruited **5 groups of C2-students** attending simulation classes, **each** involving **5–6 C2-students**. Training included **three-cycle scenario**.

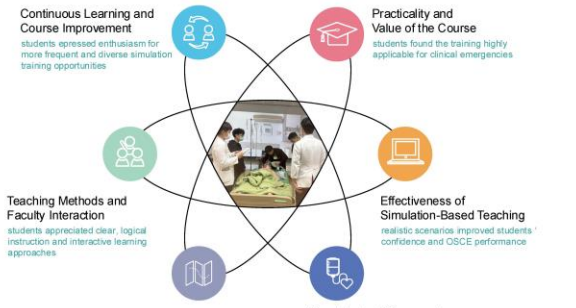
- Totally 24 students completed questionnaires assessing learning outcomes and well-being.
- **Quantitative** data were analyzed using **Generalized Estimating Equations** and Generalized Linear Models.
- **Qualitative** open-ended questions feedback was **thematically analyzed to code and categorizes the data into themes** about students'perceptions and experiences.

CONCLUSIONS

Integrating EM into HFS-EMT significantly enhances C2 medical students' learning outcomes, well-being, and emergency management competence.

RESULTS

The thematic analysis of qualitative feedback revealed six key themes



Variable	β	SE	Wald Chi-square	p	95% Confidence Interval Lower	Upper
Attitudes toward learning post vs.pre (test)	2.48	0.72	11.99	<0.001	1.08	3.89
Baseline score	0.51	0.01	868.90	<0.001	0.48	0.55
Cognitive load post vs.pre (test)	-5.89	2.37	6.16	0.013	-10.5	-1.2
Baseline score	0.66	0.11	35.02	<0.001	0.44	0.88
Well-being post vs.pre (test)	-0.48	0.23	4.45	0.035	-0.92	-0.03

Table.1 Changes in Medical Student Second-year clerks s' Attitudes, Cognitive load and Well-being by Using General Estimating Equation Multiple Linear Regression

Variable	β	SE	Wald Chi-square	p	95% Confidence Interval Lower	Upper
Emergency condition management Post vs.pre (test)	5.98	0.55	119.97	<0.001	4.90	7.05
Baseline score	0.51	0.03	341.98	<0.001	0.46	0.57
Airway management post vs.pre (test)	5.43	0.68	63.75	<0.001	0.42	6.77
Baseline score	0.48	0.03	285.11	<0.001	0.42	0.54
TRM Concept post vs.pre (test)	6.04	0.65	86.60	<0.001	4.77	7.31
Baseline score	0.51	0.01	4013.41	<0.001	0.50	0.53

Table.2 Changes Medical Student Second-year clerks'Competence by Using General Estimating Equation Multiple Linear Regression

REFERENCES

Clinical Uses and Impacts of Emergency Manuals During Perioperative Crises. Anesth Analg, 2020
Stress and decision-making in resuscitation: A systematic review. Resuscitation, 2019
https://www.emergencymanuals.org/

國防醫學大學 NATIONAL DEFENSE MEDICAL UNIVERSITY

三軍總醫院 Tri-Service General Hospital

Corresponding author
Yung-Chi Hsu
x0939778570@gmail.com

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

The use of aromatherapy to ameliorate postoperative nausea in gynecological patients: a randomized clinical trial.

P146

Chi-Hua Lee[1*], Shun-Ming Chan[1], Han-Bin Huang [2]

[1]Department of Anesthesiology, Tri-service General Hospital [2] Department of Public Health, National Defense Medical University, Taipei, Taiwan

INTRODUCTION

1. PONV Prevalence
Postoperative nausea and vomiting (PONV) occurs in **20–30%** of surgical patients.

2. Clinical Consequences
Leads to poor wound healing, dehydration, electrolyte imbalance, aspiration pneumonia, prolonged hospital stay.

3. Current Treatment Limitations
Antiemetics: additional costs & side effects (sedation, arrhythmia).

4. Alternative Approach
Aromatherapy: **non-invasive, low-cost, complementary therapy** with potential benefits.

AIM

To investigate whether peppermint or lavender essential oils can:

1. **Reduce incidence and severity of PONV.**
2. **Improve anesthesia satisfaction in gynecological laparoscopic patients.**

METHOD

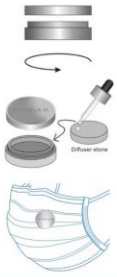
Study Design

Prospective, randomized, placebo-controlled clinical trial.
- Period: Feb – Apr 2023.
- Setting: Medical center in northern Taiwan.
- Sample size: 67 women undergoing laparoscopic gynecologic surgery.

Random allocation into 3 groups:
- Peppermint oil (n=23)
- Lavender oil (n=24)
- Distilled water control (n=20)

Intervention & Measurement

Intervention Delivery
Aromatherapy delivered via mask diffuser in recovery room for **30 minutes.**



Outcome Measurement
Outcomes measured at 15 min, 30 min, 24 hrs:
- Incidence of nausea/vomiting
- Severity (VAS scale)
- Patient satisfaction (Likert scale)

Statistical Analysis
Statistical analysis: Chi-square, ANOVA, GEE.

RESULTS

Incidence of PONV

At 30 min post-intervention:

65%	21%	50%
Control	Peppermint	Lavender

Severity of Nausea

Primary Finding
Peppermint group showed significantly lower nausea severity compared to control at **30 min** (p=0.01).

Time-Based Analysis
Greater reduction in nausea severity at **15 and 30 min** for peppermint vs control (p=0.03).

Categorical Analysis
No significant difference among groups when categorized as none / mild / moderate / severe (p>0.05).

Satisfaction

- **Aromatherapy groups reported higher satisfaction** with anesthesia compared to control (p<0.05).
- No major adverse effects observed.

CONCLUSIONS

Clinical Efficacy
Peppermint essential oil significantly reduced incidence and severity of PONV.

Patient Experience
Aromatherapy improved patient satisfaction after anesthesia.

Safety Profile
Safe, non-invasive, cost-effective complementary therapy for perioperative care.

Clinical Integration
Supports Enhanced Recovery After Surgery (ERAS) pathway.

REFERENCES

Hines, S., Steels, E., Chang, A., & Gibbons, K. (2018).Aromatherapy for treatment of postoperative nausea and vomiting.

Fearrington, M. A., Qualls, B. W., & Carey, M. G. (2019).Essential oils to reduce postoperative nausea and vomiting. *Journal of PeriAnesthesia Nursing*, 34(5), 1047–1053.

Karaman, S., et al. (2019).A randomized placebo-controlled study of aromatherapy for the treatment of PONV. *Complementary Therapies in Medicine*, 42, 417–421.

Myles, P. S., & Wengritzky, R. (2012).Postoperative nausea and vomiting: contribution to dissatisfaction with anesthesia. *British Journal of Anaesthesia*, 108(3), 387–390.

Cost -effectiveness Analysis between only physical therapies and combine epidural steroid injection for Patients with Lumbar Disk Herniation

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Cost-Effectiveness Analysis between only physical therapies and combine epidural steroid injection for Patients with Lumbar Disk Herniation

Kuei-Chen Lee*[1], Yung-Tsan Wu[1], Liang-Cheng Chen[1]

1 Department of Physical Medicine and Rehabilitation, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan

P187

三軍總醫院 Tri-Service General Hospital

INTRODUCTION

Lumbar herniated intervertebral disc (HIVD) is highly prevalent in clinical practice, and patients in Taiwan consume considerable healthcare resources due to this condition. Most patients prefer conservative physical therapy over decompression surgery, which carries higher risks and longer recovery times. Epidural steroid injection (ESI) has emerged as an alternative treatment, offering faster pain relief than conservative therapy while presenting lower risks than surgery.

AIM

This study aimed to compare the cost-effectiveness of conservative physical therapy alone versus physical therapy combined with epidural steroid injection.

METHOD

Patients diagnosed with lumbar HIVD with root compression were allocated into two groups. The experimental group received caudal epidural injection (80 mg Solu-Medrol + 0.15% Lidocaine) in addition to conservative physiotherapy (diathermy, lumbar traction and exercise). The control group received physical therapy only. All patients underwent in-hospital treatments. Data were collected at baseline, one week, and one-month post-treatment. Outcome measures included back and leg pain scores, the Oswestry Disability Index (ODI), and depression scores. Intervention costs (including physical therapy fees, medication, and injection expenses) were analyzed, and cost-effectiveness was evaluated using the incremental cost-effectiveness ratio (ICER; ΔC/ΔE).

RESULTS

The experimental group included 24 patients (mean age: 24.29 ± 2.40 years), and the control group included 37 patients (mean age: 23.49 ± 1.79 years). All participants were male military personnel, with no significant baseline differences between groups ($P > 0.05$). Both groups showed significant improvements at one week and one month. Compared to the control group, the experimental group demonstrated greater improvements, particularly in low back pain reduction ($p = 0.005$) and ODI scores ($p = 0.049$) at one week. Although the experimental group incurred higher treatment costs, ICER analysis indicated superior cost-effectiveness compared with the control group. Mild side effects such as limb numbness, flushing, headache, insomnia, and nausea occurred but resolved within 24 hours without serious complications.

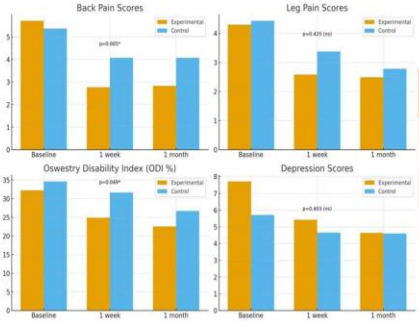


Figure1. *Comparison of* effectiveness between two groups at baseline, one week and one month

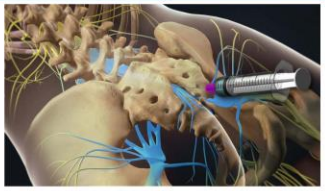
Table 1. Comparison of ICER between experimental group and control group

Effectiveness	Experimental (NTD/Unit)		Control (NTD/Unit)
Back Pain	1763.4	<	2402.2
Leg Pain	3002.9	>	2963.7
ODI (%)	706.7	<	943.4
Depression	2260.3	<	2971.3

ICER:Incremental Cost Effectiveness Ratio (ΔC/ΔE)
Cost: physical therapy fees, medication, and injection expenses
Effectiveness: decrease of back and leg pain scores, ODI and depression scores
ODI: Oswestry Disability Index

CONCLUSIONS

Combining epidural steroid injection with conservative physical therapy provided superior short-term cost-effectiveness in pain relief and functional improvement compared with physical therapy alone. Despite higher treatment costs, the combined approach demonstrated better cost-effectiveness, supporting its clinical utility in managing lumbar HIVD.



https://www.cfaortho.com/

https://www.weili-clinic.com/

REFERENCES

1.Cost-effectiveness of Transforaminal epidural steroid injections for patients with ACUTE sciatica: a randomized controlled trial. Ter Meulen BC, Maas ET, van der Vegt R, Haumann J, Weinstein HC, Ostelo RWJG, van Dongen JM.BMC Musculoskelet Disord. 2024 Apr 1;25(1):247.
2.Cost-effectiveness of combination therapy (Mechanical Diagnosis and Treatment and Transforaminal Epidural Steroid Injections) among patients with an indication for a Lumbar Herniated Disc surgery: Protocol of a randomized controlled trial. Mutubuki EN, van Helvoirt H, van Dongen JM, Vleggeert-Lankamp CLA, Huygen FJPM, van Tulder MW, Klopper- Kes HAHJ, Ostelo RWJG. Physiother Res Int. 2020 Jan;25(1):e1796.

ACKNOWLEDGEMENT

This study was supported by the Tri-Service General Hospital Research Foundation (Grant numbers: TSGH-D-113133, TSGH-D-114129) and NSTC113-2635-B-016-002).

Reduce the incidence of nutritional problems in patients after bariatric surgery

Reduce the Incidence of Nutritional Problems in Patients After Bariatric Surgery

Yun-Ting Wang [1], Yun-Ning Ou[1], Shu-Yu Lo[1], Hsu-Chen Lin[1], Yun-Chen Hsieh[1], Hao Yen[1], Kuo-Feng Hsu[2], Lin-Chien Chan[1]
1.Department of Food and Nutrition, Tri-Service General Hospital, Taipei, Taiwan
2.Department of Surgery, Tri-Service General Hospital, Taipei, Taiwan

P260

INTRODUCTION

Bariatric surgery effectively reduces weight and improves health in the short term, but anatomical changes in the gastrointestinal tract often impair nutrient absorption, leading to potential long-term complications such as anemia, bone loss, hair loss, and altered taste. Nutrition care is an essential part of comprehensive medical management. This study emphasizes preventive nutrition strategies to reduce the incidence of postoperative nutritional problems and thereby mitigate long-term adverse effects.

AIM

The aim of this quality improvement study was to reduce the incidence of nutritional problems among post-bariatric surgery patients at a single academic medical center in Taiwan. The target was to lower the nutrition problem rate to below 45% by improving patient education and nutrition care delivery.

METHOD

This pre- and post-intervention quality improvement study was conducted from April to November 2024. The study population included patients undergoing bariatric surgery at the institution. A pilot study identified key causes of nutritional problems: deficiencies in educational materials, unclear postoperative dietary guidance, inconsistent nutritionist counseling, and inconvenient paper-based pamphlets.

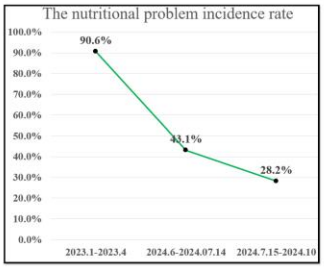
To address these issues, three interventions were implemented:
1. Development of an official communication software account (LINE) providing interactive, pictorial nutrition education and instant query response.
2. Creation of standardized nutritionist education templates to ensure consistent counseling and verification of patient understanding.
3. Digitalization of educational pamphlets into cloud-based e-books accessible anytime, improving portability and access.

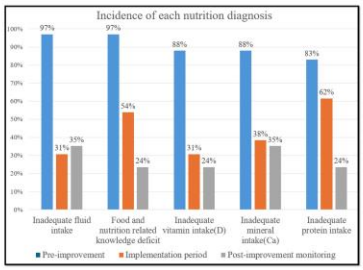
Nutritionists delivered education before patient discharge, including instructions on using the communication platform. Patients were required to attend nutrition outpatient follow-up one month post-surgery. Nutrition problem incidence was evaluated at this visit, defined as the total number of identified issues over total possible instances (five defined nutrition problems: insufficient protein, fluid, vitamin D, calcium intake, and nutrition-related knowledge).

RESULTS

Pre-intervention data showed an alarmingly high incidence of nutritional problems among post-bariatric surgery patients, measured at 90.6%. The study team set a quality improvement target of reducing this rate to below 45%.

Following the implementation of the multi-component intervention, the nutritional problem incidence significantly decreased to 28.2%, representing a 68.9% improvement and achieving 136.8% of the set goal. This dramatic reduction underscores the efficacy of integrating technology-driven, standardized nutrition education in postoperative care.





Several specific patient-centered benefits were observed:

- **Reduction in Nutrition-Related Inquiries**: The proportion of patients requiring nutrition-related questions through the communication app dropped from 62% to just 8%, reflecting improved clarity and accessibility of information.
- **Accelerated Response Times**: Patients experienced a substantial reduction in waiting times for professional advice, moving from delays as long as one week to instantaneous responses via the interactive platform.
- **Achievement of Weight Loss Goals**: Approximately 80% of patients met or exceeded their first-month post-surgery weight loss targets, indicating the positive impact of improved nutritional adherence.
- **High Satisfaction with Educational Resources**: Patient feedback on the usability and helpfulness of electronic education materials was overwhelmingly positive, averaging 4.7 out of 5 on satisfaction surveys.

In addition to the direct benefits to patients, the interventions alleviated the workload burden on nutritionists by automating routine queries and standardizing counseling contents. This reduction in manual effort correlated with decreased occupational stress among nutrition staff.

CONCLUSIONS

Nutritional problems are prevalent and critical concerns among patients undergoing bariatric surgery, necessitating comprehensive preventive strategies beyond traditional nutritionist counseling. This study demonstrated that supplementing personalized education with timely, accessible, and user-friendly digital nutrition resources can significantly lower the incidence of postoperative nutritional complications.

The successful integration of communication platforms and cloud-based educational materials empowered patients to self-manage their nutrition more effectively, facilitating better health outcomes and enhancing medical quality. These findings highlight the vital role of innovative health informatics tools in the continuum of postoperative care for bariatric patients.

ACKNOWLEDGEMENT

We would like to thank the Quality Management Center of Tri-Service General Hospital for their year-long course planning, which enabled the successful completion of this improvement project. We also sincerely appreciate the dietitian team and Dr. Hsu, who participated in the project.

REFERENCES

Mechanick JI, Apovian C, Brethauer S, et al. Clinical practice guidelines for the perioperative nutrition, metabolic, and nonsurgical support of patients undergoing bariatric procedures - 2019 update: cosponsored by American association of clinical endocrinologists/American college of endocrinology, the obesity society, american society for metabolic & bariatric surgery, obesity medicine association, and American society of anesthesiologists - executive summary. Endocr Pract. 2019;25(12):1346-1359.

Hassan M, Barajas-Gamboa JS, Kanwar O, et al. The role of dietitian follow-ups on nutritional outcomes post-bariatric surgery. Surg Obes Relat Dis. 2024;20(4):407-412.

CONTACT INFORMATION

Corresponding author:

Wang-Ting Wang, RD

Department of Food and Nutrition, Tri-Service General Hospital

Email: wang1991@mail.ndmctsgh.edu.tw

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Utilizing Power BI for Medication Monitoring: Identifying Abnormal Medication Trends to Improve Healthcare Quality

Yuying Fu, Tsung-Kun Lin
Department of Pharmacy Practice, Tri-Service General Hospital, Taipei, Taiwan

P337

INTRODUCTION

Rational medication use is essential for improving patient safety, reducing adverse events, and promoting antimicrobial stewardship. **Traditional** medication trend analysis methods, such as **ATC/DDD** metrics, often fail to capture nuanced prescribing behaviors, especially with **combination** and **topical** drugs.

AIM

This study aims to develop a **Power BI-based, automated, data-driven** platform for **comprehensive and continuous monitoring** of medication utilization, enabling **real-time** detection of **abnormal trends** and supporting evidence-based pharmaceutical interventions.

METHOD

Medication data (2016–2023) was analyzed in Power BI using DAX to compute usage, standard deviation, growth, and moving averages. Abnormal trends were flagged by **modified Western Electric Rules**:

1. Usage exceeded growth-based limits for 3 months
2. Above moving average for 9 months
3. Continuous increase for 6 months

Growth rate replaced standard deviation to **reduce false alarms**. Criteria targeted a **5% alert rate**. The method was **validated with past events** and has been applied monthly since 2024.

RESULTS

System Performance

1. According to the defined criteria, historical abnormal medication utilization events (2016–2023) were replicated with **100%** accuracy.
2. From January to December 2024 (Figure 1)
   - 3.3–5.7% of medications exceeded control limits.
   - 1.8–4.8% of medications remained above the moving average for nine consecutive months.
   - 0–0.3% of medications showed a continuous increase for six months.
3. ~50% of abnormal trends were due to formulary changes (e.g., therapeutic substitutions).
4. 4 major issues resolved, improving patient safety.

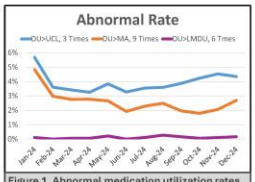


Figure 1. Abnormal medication utilization rates from January to December 2024.

Operational Efficiency (Figure 2)

95% reduction in manual workload (80 hours to 4 hours per month).

Figure 2. Manual workload reduced by 95% (80 → 4 hrs/month).

Power BI Dashboard

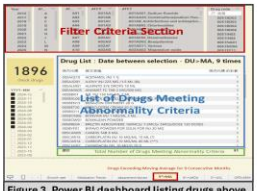


Figure 3. Power BI dashboard listing drugs above the moving average for 9 consecutive months.

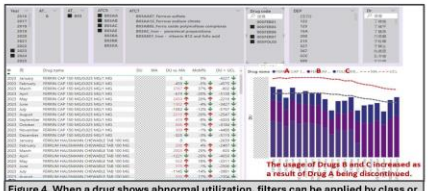


Figure 4. When a drug shows abnormal utilization, filters can be applied by class or ingredient to view stacked usage of related drugs and clarify substitution effects.

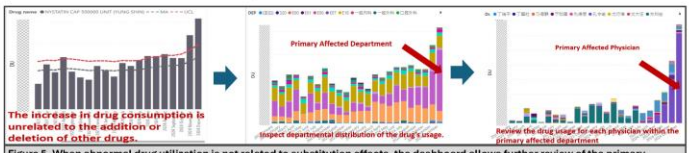


Figure 5. When abnormal drug utilization is not related to substitution effects, the dashboard allows further review of the primary affected department and responsible physicians.

CONCLUSIONS

This study shows the feasibility of using **Power BI** for detecting **abnormal medication trends**. The system **replicated historical issues with high accuracy** and **improved surveillance efficiency**. It offers a **scalable digital tool** aligned with **healthcare quality** and **precision medicine goals**. While patient-level factors like diagnosis and comorbidities are not yet included, future integration will enhance personalization and support proactive, data-driven medication management.

ACKNOWLEDGEMENT

The authors thank the interdisciplinary team at Tri-Service General Hospital for their support in system implementation and validation. We also acknowledge ISQua for the opportunity to present this work.

REFERENCES

1. WHO Collaborating Centre for Drug Statistics Methodology. ATC/DDD Index. Oslo, Norway: Norwegian Institute of Public Health; [cited 2024 May 20]. Available from: https://www.whocc.no/atc_ddd_index/
2. Western Electric Company. Statistical Quality Control Handbook. Indianapolis: Western Electric; 1956.
3. Montgomery DC. Introduction to Statistical Quality Control. 7th ed. Hoboken (NJ): Wiley; 2012.
4. Microsoft Corporation. DAX Reference – Data Analysis Expressions in Power BI. Redmond (WA): Microsoft; [cited 2024 May 20]. Available from: https://learn.microsoft.com/en-us/dax/

CONTACT INFORMATION

Yuying Fu
Department of Pharmacy Practice, Tri-Service General Hospital, Taipei, Taiwan
francis.yuying@gmail.com

Hydralazine Reduces Phlebotomy Frequency, Phlebotomy-Related Mortality and All-Cause Mortality in Patients Requiring Regular Phlebotomy： Real-World Evidence from a 16-year Nationwide Cohort Study

São Paulo Brazil 2025

12th – 15th October
#ISQua2025

Inclusive Health Systems: Navigating Challenges with Technology and Humanity

ISQua's 41st International Conference

Hydralazine Reduces the Risk of Incidental Pancreatic Tumors in Patients with Hypertension: A 16-year Nationwide Cohort Study

B-H. Yang* [1,2], W-C. Chien[3,4,5], I-H. Lu[6], C-H. Chung[3,4], H-C. Lin[1,2], H-S. Shang[1,2]

1. Division of Clinical Pathology, Department of Pathology, Tri-Service General Hospital , National Defense Medical University, Taipei, Taiwan
2. Institute of Pathology and Parasitology, College of Medicine, National Defense Medical University, Taipei, Taiwan
3. Department of Medical Research, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan
4. Graduate Institute of Public Health, College of Public Health, National Defense Medical University, Taipei, Taiwan
5. Taiwanese Injury Prevention and Safety Promotion Association. 6 Department of Neurosurgery, Tri-Service General Hospital, National Defense Medical University,Taipei, Taiwan

ISQUA2025- P311

INTRODUCTION

Hydralazine (HDZ), a commonly used antihypertensive medication, exhibits anti-cancer properties by modulating DNA methyltransferases (DNMTs). **Pancreatic tumors** (PaT) are associated with hypertension (HTN) and elevated DNMT expression.

This study investigates whether HDZ can reduce the risk of PaT among patients with HTN.

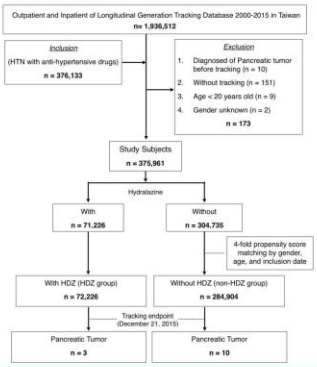
AIM

To evaluate the association between HDZ use and the risk of pancreatic tumors in patients with hypertension.

METHOD

We analyzed data from the **Longitudinal Generation Tracking Database (LGTD),** (2000–2015), a subset of **Taiwan's National Health Research Institutes Database**.

- Inclusion criteria: patients diagnosed with HTN and treated with anti-hypertensive drugs for ≥180 days.
- Exclusions: prior PaT diagnosis, no tracking data, age <20, and unknown sex. ICD-9-CM codes were used to identify PaT events.
- Propensity score matching (4:1) and Fine-Gray competing risk models adjusted for comorbidities and medications were employed. Statistical significance was set at $P<0.05$.



RESULTS

A total of 71,226 patients were included in the HDZ group, and 304,735 in the non-HDZ group. After 16 years of follow-up, **the incidence of PaT was lower in the HDZ group compared to the non-HDZ group** (0.32 vs. 0.52 per 100,000 person-years). Only 13 PaT events were identified: 3 in the HDZ group and 10 in the non-HDZ group.

Adjustment for comorbidities (e.g., obesity, diabetes mellitus, pancreatitis, Charlson Comorbidity Index) and concomitant medications (e.g., Metformin, Brexepiprazole) was performed. **The HDZ group had a significantly lower risk of PaT: asRR = 0.58, 95% CI: 0.32–0.93, $P = 0.017$.**

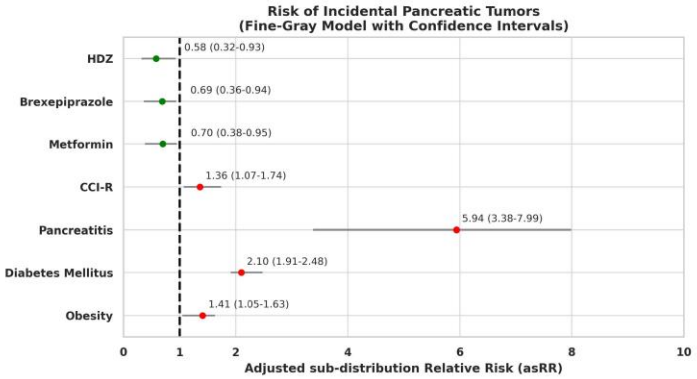


Table: Adjusted Sub-distribution Relative Risk (asRR) was calculated using Fine and Gray's competing risk model, with significant variables ($P < 0.05$) summarized below:

- HDZ demonstrated **greater protective** effect against pancreatic tumors compared to:
  Metformin (asRR = 0.70, P = 0.026) Brexepiprazole (asRR = 0.69, P = 0.020)
- Conversely, several comorbidities were associated with significantly increased risk of PaT:
  Pancreatitis (asRR = 5.94) Diabetes Mellitus (asRR = 2.10)
  Obesity (asRR = 1.41) Higher CCI scores (asRR = 1.36)

These findings reinforce HDZ's potential superiority over existing anti-PaT agents and highlight key risk factors for clinical consideration.

CONCLUSIONS

Compared with existing potential anti-PaT medications, HDZ exhibit superior capability in lowering the risk of PaT development in patients with HTN, suggesting that the multi-targeting agent may have superior potential for drug repurposing.

ACKNOWLEDGEMENT

This study was supported by grants from Tri-Service Hospital Research Foundation (TSGH-B-112018, TSGH-B-112020, TSGH-E-112226, TSGH-B-113025, TSGH-B-113026, TSGH-E-113248, TSGH-B-114022, TSGH-B-114025, and TSGH-E-114247). The data are provided by the Taiwan Ministry of Health and Welfare (MOHW).

REFERENCES

(1)Lu Y, Chan YT, Tan HY, Li S, Wang N, Feng Y. Epigenetic regulation in human cancer: the potential role of epi-drug in cancer therapy. Mol Cancer. 2020;19(1):79

(2)Wong KK. DNMT1 as a therapeutic target in pancreatic cancer: mechanisms and clinical implications. Cell Oncol (Dordr). 2020 Oct;43(5):779-792. doi: 10.1007/s13402-020-00526-4. Epub 2020 Jun 5. PMID: 32504382.

(3)Kao WH, Hong JH, See LC, Yu HP, Hsu JT, Chou IJ, et al. Validity of cancer diagnosis in the National Health Insurance database compared with the linked National Cancer Registry in Taiwan. Pharmacoepidemiol Drug Saf. 2018;27(10):1060-6.

CONTACT INFORMATION

Bing-Heng Yang MD, PhD
Tel: +886-2-87923311 Ext. 12506
Mobile: +886-928483700
Fax: +886-2-87927226
Email: rodancer0629@gmail.com

Hydralazine Reduces the Risk of Incidental Pancreatic Tumors in Patients with Hypertension：An Innovation in Drug Repurposing from a 16-year Nationwide Cohort Study

Hydralazine Significantly Reduces Mortality for Patients Undergoing Therapeutic Phlebotomy: A 16-year Population-Based Study

Y. Bing-Heng [1,2], C. Wu-Chien [3,4,5], C. Chi-Hsiang [3,4], L. Hsin-Chung [1,2], T. Meng-Ling [1,6], Y. Hung Yi [1,6], and S. Hung-Sheng [1,2]

1. Division of Clinical Pathology, Department of Pathology, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan
2. Institute of Pathology and Parasitology, College of Medicine, National Defense Medical University, Taipei, Taiwan
3. Department of Medical Research, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan
4. Graduate Institute of Public Health, College of Public Health, National Defense Medical University, Taipei, Taiwan
5. Taiwanese Injury Prevention and Safety Promotion Association
6. Blood Bank, Department of Pathology, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan

ISQUA2025- P312

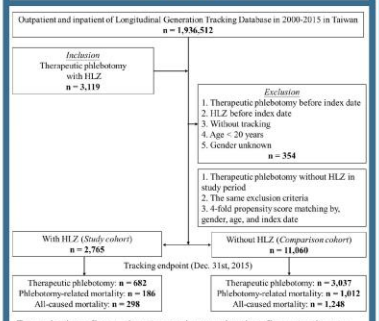
INTRODUCTION

Therapeutic phlebotomy has been widely used for patients with erythrocytosis and thrombocytosis-related complications. In a previous study[1], we demonstrated that **hydralazine (HLZ) is superior to valproate in reducing therapeutic phlebotomy frequency,** suggesting that HLZ could offer cytoreductive effects to patients who require phlebotomy. However, **it remains unclear whether HLZ use can reduce phlebotomy-associated mortality and all-cause mortality.**

AIM

To further investigate the long-term efficacy of HLZ, we analyzed data from patients who had undergone phlebotomy therapy using the Taiwan Longitudinal Generation Tracking Database (LGTD), stratifying them based on HLZ use. Specifically, we examined differences in therapeutic phlebotomy frequency and mortality rates to evaluate the potential benefits of HLZ.

METHOD



Population flow chart as shown in the figure above. To ensure comparability, 4-fold propensity score matching was performed based on age, gender, and index date. The final cohort included 2,765 patients in the HLZ group and 11,060 in the non-HLZ group. Differences in therapeutic phlebotomy frequency and mortality were analyzed using chi-square and Fisher's tests. To account for confounders, Cox regression and Fine-Gray competing risk model were used. The impact of HLZ on outcomes was assessed with adjusted Hazard Ratios (aHR). Statistical significance was defined as $P < 0.05$.

CONCLUSIONS

Hydralazine use is significantly associated with a reduced need for therapeutic phlebotomy and lower risks of both phlebotomy-related and all-cause mortality, suggesting its potential as a repurposed drug to improve outcomes in patients undergoing phlebotomy therapy.

RESULTS

The study encompassed 2,765 subjects in the HLZ group and 11,060 subjects in the non-HLZ group, with a total cohort of 13,825 patients. Patients in the HLZ group underwent significantly fewer therapeutic phlebotomy frequency compared to the non-HLZ group (682/2765;24.67% vs. 3037/11060;27.46%, P= 0.001). In this study, we used Cox regression analysis and the Fine-Gray competing risk model to reduce the influence of other factors that could affect the results. The adjusted model revealed that HLZ use was associated with a 26% reduction in the need for phlebotomy (aHR=0.742, 95% CI: 0.516~0.883, P=3.744 x 10^{-5}). **In terms of mortality rates, HLZ use was linked to a significant reduction in phlebotomy-related mortality (186/2765,6.73% vs.1012/11060,9.15%, P=1.567 x 10^{-6}).** The adjusted analysis demonstrated that HLZ group had a 24.5% lower risk of phlebotomy-related mortality compared to non-HLZ group (aHR=0.755, 95% CI: 0.563~0.911, P=0.001). Moreover, **HLZ group had a 21.6% lower risk of all-cause mortality compared to non-HLZ group (aHR=0.784, 95% CI: 0.661~0.963, P=0.006). These results indicated that HLZ use is associated with a significant mortality risk in patients who need therapeutic phlebotomy** (Table 1).

Additionally, Kaplan–Meier survival analysis with log-rank test was applied to illustrate the time-dependent differences between groups. The HLZ group consistently demonstrated a lower cumulative risk of therapeutic phlebotomy, improved phlebotomy-related mortality, and overall survival across the follow-up period, further reinforcing the long-term protective effect of HLZ (Figure 1).

Cohorts	HLZ			Comparison *(Reference)*			HLZ vs. Comparison *(Reference)*			
Events	Events	PYs	Rate (per 10^5 PYs)	Events	PYs	Rate (per 10^5 PYs)	Adjusted HR	95% CI	95% CI	*P*
Therapeutic phlebotomy	682	27,597.86	2,471.21	3,037	109,853.27	2,764.60	**0.742**	0.516	0.883	**$3.744x10^{-5}$**
Phlebotomy -related mortality	186	28,790.14	646.05	1,012	112,456.07	899.91	**0.755**	0.563	0.911	**0.001**
All-caused mortality	298	29,978.01	994.06	1,248	113,685.18	1,097.77	**0.784**	0.661	0.963	**0.006**

PYs = Person-years; Adjusted HR = Adjusted Hazard ratio: Adjusted for the variables by using Cox regression with / without Fine and Gray's competing risk model ; CI = confidence interval

Table 1. Factors of events by using Cox regression and the Fine-Gray competing risk model, events including Therapeutic phlebotomy, Phlebotomy-related mortality and All-caused mortality.

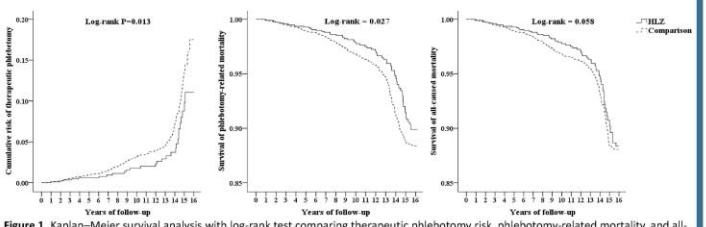


Figure 1. Kaplan–Meier survival analysis with log-rank test comparing therapeutic phlebotomy risk, phlebotomy-related mortality, and all-cause mortality between the HLZ and comparison groups.

REFERENCES

1. Lin, W. Z., Chung, C. H., Shaiu, C. Y., Yang, B. H., and Chien, W. C. (2022). Hydralazine Associated With Reduced Therapeutic Phlebotomy Frequency in a Nationwide Cohort Study: Real-World Effectiveness for Drug Repurposing. Frontiers in Pharmacology, 13, 850045.

ACKNOWLEDGEMENT

This study was supported by grants from Tri-Service Hospital Research Foundation (TSGH-B-112018, TSGH-B-112020, TSGH-E-112226, TSGH-B-113025, TSGH-B-113026, TSGH-E-113248, TSGH-B-114022, TSGH-B-114025, and TSGH-E-114247). The data are provided by the Taiwan Ministry of Health and Welfare (MOHW).

CONTACT INFORMATION

Bing-Heng Yang MD, PhD
Tel: +886-2-87923311 Ext. 12506
Mobile: +886-928483700 Fax: +886-2-87927226
Email: rodancer0629@gmail.com