臺灣兒科醫學會
第六十七屆年會暨第二六六屆學術演講會報到卡

報到時間：民國115年4月18日(星期六)上午8時30分至下午4時。
民國115年4月19日(星期日)上午8時30分至下午2時30分。

報到地點：台北國際會議中心(台北市信義區信義路5段1號)

兒科專科醫師積分：14分(14小時)／青少年醫學教育時數：3小時

醫學倫理課程主題：環境衛生安全與嬰幼兒退伍軍人菌感染(醫倫學分[含感染管制]：申請中)

醫學倫理課程報到注意事項：

①欲取得「醫學倫理學分」之會員，請務必在**規定時間**內投**報到卡**及**簽退卡**於投卡箱內方可計分，若僅投**報到卡**或**簽退卡**者均不予計分，並請勿代理投卡。

②投報到卡時間：民國115年4月19日(星期日)下午12時50分至2時。
投簽退卡時間：民國115年4月19日(星期日)下午2時20分至2時50分。

費　　用：會員500元/非本會會員3,000元(本人現場繳納，請勿代理簽到)。
準會員/兒科住院醫師免收註冊費。
※報到時請出示有照片之證件正本供工作人員核對，無證件者恕不接受報到。
※兒科住院醫師報到須出示相關證明。

注意事項：**①大會現場敬備午餐，憑註冊費收據領取，數量有限，供完為止。**
②收據如需開立抬頭，請事先告知。
③會員資料變更者請填寫：
會員編號：_____姓名：_____電話：_____
E-mail：_____
_____

第六十七屆年會暨第二六六屆學術演講會會場動線圖
臺北國際會議中心

(1)捷運：淡水信義線(紅線)台北101/世貿站 1號出口，板南線(藍線)市政府站 2號出口，請搭乘藍 5 號
(2)周邊公車站牌：258, 292, 293, 611, 284, 294, 294, 282, 20, 625, 22, 37, 266, 288, 202, 207

※住宿資訊請至「第266屆學術演講會網站」查詢，請掃描右方QR Code。
※本會已成為台灣高鐵公司的企業會員，即日起，可直接至高鐵車站「商務/企業購票窗口」購票，主動告知企業會員統編「04134086」即可快速購票，節省排隊、等待的時間，歡迎會員多加利用！

學術演講會網站

臺灣兒科醫學會第二六六屆學術演講會時間表

民國 115 年 4 月 18 日(星期六)

(2F)201A、B、C 會議室

09:00 **第一單元:**
過敏免疫風濕病學
(1~8 題)

10:20
10:20 休息
10:30
10:30 **第一單元:**
過敏免疫風濕病學
(9~16 題)

11:50
12:00 **附加研討會**
主　題:台灣兒童肺炎鏈球菌鏈預防新展望
主持人:曹伯年醫師、穆淑琪醫師
演講者:林千裕醫師、林湘瑜醫師

13:30

(2F)201D、E、F 會議室

09:00 **第四單元:**
新生兒學
(33~38 題)

10:00
10:00 休息
10:10
10:10 **第四單元:**
新生兒學
(39~44 題)

11:10
12:00 **附加研討會**
主　題:守護兒童健康，鏈結未來防護
主持人:李秉穎醫師
演講者:陳志榮醫師、黃玉成醫師

13:30

(1F)102 會議室

09:00 **第七單元:**
心臟血管學
(62~65 題)

09:40
09:40 休息
09:50
09:50 **第八單元:**
醫學人文教育及其他
(66~72 題)

11:00
12:00 **附加研討會**
主　題:從治療到預防：益生菌在兒童上呼吸道感染管理中的角色轉變
主持人:倪衍玄理事長
演講者:穆淑琪醫師、Prof. Diego Peroni

13:30

(1F)103 會議室

09:00 **第十一單元:**
小兒預防及流行病學
(89~92 題)

09:40
09:40 休息
09:50
09:50 **第十二單元:**
青少年醫學
(93~95 題)

10:20
10:20 休息
10:30
10:30 **第十三單元:**
內分泌學
(96~103 題)

11:50
12:00 **附加研討會**
主　題:牛羊奶配方營養於子代免疫調節及異位性皮膚炎之臨床研究進展
主持人:王志堯醫師
演講者:王志堯醫師、Dr. Elisabeth Weichselbaum

13:30

(2F)201A、B、C 會議室

13:40 **第二單元:**
腸胃學、營養學
(17~21 題)

14:30
14:30 休息
14:40
14:40 **第二單元:**
腸胃學、營養學
(22~25 題)

15:20
15:20 休息
15:30
15:30 **第三單元:**
血液學、腫瘤學
(26~32 題)

16:40

(2F)201D、E、F 會議室

13:40 **第五單元:**
肺臟、急診及重症學
(45~51 題)

14:50
14:50 休息
15:00
15:00 **第六單元:**
感染學
(52~56 題)

15:50
15:50 休息
16:00
16:00 **第六單元:**
感染學
(57~61 題)

16:50

(1F)102 會議室

13:40 **第九單元:**
神經精神醫學
(73~77 題)

14:30
14:30 休息
14:40
14:40 **第九單元:**
神經精神醫學
(78~81 題)

15:20
15:20 休息
15:30
15:30 **第十單元:**
腎臟學
(82~88 題)

16:40

(1F)103 會議室

13:40 **第十四單元:**
醫學遺傳學、新陳代謝學
(104~111 題)

15:00
15:00 休息
15:10
15:10 **第十四單元:**
醫學遺傳學、新陳代謝學
(112~119 題)

16:30

民國 115 年 4 月 19 日(星期日)

(2F)201A、B、C、D、E、F 會議室

09:00 **教育演講**
主　題:兒童青少年肥胖論壇
主持人:洪佑承醫師、詹前俊醫師
演講者:劉喆瑩醫師、歐淑娟醫師、蘇琮祺心理師、李宏昌醫師

12:00
12:00 **附加研討會**
主　題:RSV 與 COVID-19 感染的臨床表現與預防策略
主持人:李秉穎醫師、邱政洵醫師
演講者:顏廷聿醫師、張鑾英醫師

13:30

13:35 **醫學的科學、倫理與法律講座**
主　題:環境衛生安全與嬰幼兒退伍軍人菌感染
主持人:倪衍玄理事長
演講者:盧敏吉教授

14:35
14:35 休息
14:40
14:40 **頒獎/會員代表大會/選舉**

17:00

(1F)102 會議室

09:00 **陳炯霖教授講座獎**
主　題:我國兒童健康福祉照護之現況與展望
主持人:呂鴻基醫師
演講者:沈靜芬署長

10:00
10:00 **專題演講**
主　題:2025 年 AHA 急救指引更新
主持人:王玠能醫師、楊生湳醫師
演講者:詹聖霖醫師、穆淑琪醫師

11:40
12:00 **附加研討會**
主　題:嬰幼兒 RSV 預防新里程
主持人:鄭名芳醫師、楊俊仁醫師
演講者:王麗潔醫師、曹珮真醫師、張佳容醫師

13:30

(1F)103 會議室

12:00 **附加研討會**
主　題:健兒門診的新視角:兒科 x 眼科攜手守護幼兒的視力發展
主持人:吳佩昌醫師
演講者:陳語霈醫師、洪梓策醫師

13:30

(3F)宴會廳

12:00 **附加研討會**
主　題:腦膜炎雙球菌：幼童風險與疫苗防護策略
主持人:鍾美勇醫師
演講者:林湘瑜醫師、江明洲醫師

13:30

地點：臺北國際會議中心(台北市信義區信義路 5 段 1 號)

一般演講：口頭報告

第一單元：過敏免疫風濕病學

日期：民國115年4月18日(星期六)
時間：09:00～11:50
地點：(2F)201A、B、C會議室

主持人：葉國偉、魏長菁

09:00～09:07　1. 非第二型過敏反應(Non-T2)氣喘之 E 型免疫球蛋白濃度低下與缺乏過敏原致敏化反應：結合細胞激素、轉錄組學與生物資訊學之研究
李志鴻、林于粲、王麗潔、俞欣慧、胡雅喬、康竣閔、楊曜旭、江伯倫
台大醫院小兒部

09:07～09:14　2. 探討金針菇的免疫調節蛋白 FIP-fve 對柴油引擎廢氣 PM2.5 引起的呼吸道上皮發炎的保護與治療效果
林暐凱[1,2]、李育慈[3]、柯俊良[3]、孫海倫[1,2,3]、顧明修[1,2,3]、廖培汾[1,2]、楊雅婷[1,2]、顏宜萱[1,2]、呂克桓[1,2,3]
中山醫學大學附設醫院兒童部[1];中山醫學大學醫學系[2]、醫學研究所[3]

09:14～09:21　3. 嗜酸性球升高多基因遺傳架構分析：rs7646596 基因座與白介素訊號途徑之角色
楊樹文、魏長菁、王志堯
中醫大兒童醫院小兒過敏免疫風濕科

09:21～09:28　4. 介白素-33 促發導致粒線體功能障礙與粒線體轉移促進過敏原誘導的上皮-間質轉化
洪志興[1,2,3,4]、蔡美蘭[4]
高雄醫學大學附設醫院小兒部[1];高雄醫學大學小兒學科[2];高雄市立小港醫院小兒科[3];高雄醫學大學精準環境醫學中心[4]

09:28～09:35　5. 探討臍帶血間質幹細胞來源的外泌體對異位性皮膚炎療效評估：免疫調解、皮膚發炎修護、副作用
簡浩竣[1,2]、李育慈[3]、柯俊良[3]、孫海倫[1,2,3]、顧明修[1,2,3]、廖培汾[1,2]、楊雅婷[1,2]、顏宜萱[1,2]、呂克桓[1,2,3]
中山醫學大學附設醫院，兒童部，過敏免疫科[1];中山醫學大學醫學院，醫學系[2]、醫研所[3]

09:35～09:42　6. 間質幹細胞外泌體與癌細胞外泌體對正常與癌細胞不同作用及其作用機轉研究
楊崑德[1,2]、林佳學[1,2]、陳治平[3]
馬偕兒童醫院[1];陽明交通大學臨醫所[2];馬偕紀念醫院婦產科、醫研部[3]

09:42～09:49 7. 來自低氧培養臍帶間質幹細胞（ucMSCs）所分泌的細胞外泌體可活化 AKT/mTOR 訊號並調節細胞自噬，以拯救細胞生長及緩解細胞衰老
林佳學[1,2]、陳治平[3]、楊崑德[1,2]
馬偕兒童醫院[1];陽明交通大學臨醫所[2];馬偕紀念醫院婦產科、醫研部[3]

09:49～09:56 8. 氫分子透過調控 ZAP70 與 LCK 相關免疫訊號途徑減輕川崎症小鼠模型中的冠狀動脈血管炎
郭和昌[1,2,3]、黃瀛賢[1,2,3]、郭光哲[1,2,3]、郭明慧[1,2,3]
高雄長庚醫院兒童內科部[1]; 高雄長庚醫院川崎症中心[2]; 長庚大學醫學院[3]

09:56～10:20 討論

10:20～10:30 休息

主持人：王志堯、王麗潔

10:30～10:37 9. 川崎氏症與後續過敏性疾病之關聯性：TriNetX 世代研究
黃永杰[1,2]、吳文瑜[1]、劉宜欣[1]、蔡明瑾[1]、傅令嫻[1,2]
臺中榮民總醫院兒童醫學中心兒童過敏免疫科[1];國立中興大學醫學院學士後醫學系[2]

10:37～10:44 10. 台灣與日本兒童過敏原致敏型態之潛在結構分析：以回顧性 MAST 資料探討跨國差異與疾病關聯性
蔡妙君[1]、劉小綾[1]、楊樹文[2]、魏長菁[2]、李貞穎[1]、王志堯[1,2]
中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[1] 中醫大兒童醫院小兒過敏免疫風濕科

10:44～10:51 11. 九價人類乳突病毒疫苗接種後幼年型特發性關節炎之性別差異風險：COVID-19 大流行時期與前期的世代研究
蔡明瑾[1]、吳文瑜[1]、黃永杰[1,4]、陳信華[2,4]、徐倩儀[3]、傅令嫻[1,4]
臺中榮民總醫院、兒童醫學中心[1]、內科部過敏免疫風濕科[2]、醫學研究部[3];
國立中興大學醫學院學士後醫學系[4]

10:51～10:58 12. 兒童特發性關節炎患者維生素 D 狀態：與病程、骨轉換指標及骨密度之關聯
王泳淇[1]、高純淳[1,2]、張志丞[1,3]、黃璟隆[1,2]、李文益[1,2]、葉國偉[1,2]、歐良修[1,2]、吳昭儀[1,2]
長庚大學醫學院[1]；林口長庚紀念醫院兒科內科部兒童過敏氣喘風濕科[2]、急重症影像診療科[3]

10:58～11:05 13. 性聯遺傳慢性肉芽腫病女性帶因者之免疫功能與自體免疫特徵分析
王瑀謙[1]、林靜微[1]、陳志安[1]、林妙珊[2]、鄭婉廷[2]、謝奇璋[1,2]
國立成功大學醫學院附設醫院小兒部[1]; 國立成功大學臨床醫學研究所[2]

11:05～11:12 14. 台灣兒童慢性復發性多灶性骨髓炎：臨床表現與診斷挑戰之病例系列
鄭喬勻[1]、吳昭儀[1,2]、張志丞[3]、葉國偉[1,2]、姚宗杰[1,2]、歐良修[1,2]、曾吉騰[4]、黃璟隆[1,2]
長庚大學醫學院[1]; 長庚紀念醫院兒科過敏氣喘風濕科[2]; 長庚紀念醫院急重症影像診療科[3]; 長庚紀念醫院基隆分院小兒科[4]

11:12～11:19　15. 異位性皮膚炎治療的矛盾：未治療患者面臨最高的糖尿病風險
陳浩鋆[1]、魏長菁[2]、廖文伶[1]、王志堯[2]
中國醫藥大學醫學系[1]; 中國醫藥大學兒童醫院 兒童過敏免疫風濕科[2]

11:19～11:26　16. 影響氣喘孩童選用乾粉吸入器之因素探討
許芯寧[1,2]、張郁婕[2,3]、謝筱菩[2]、萬國華[2]、林天祥[1]、林子鈺[4]、顏大欽[5]、林思偕[6]
林口長庚醫院 呼吸治療科[1];長庚大學 呼吸治療學系[2];基隆長庚醫院 呼吸治療科[3];新北市立土城醫院 藥劑科[4];台北長庚醫院 兒童內科[5]; 林口長庚醫院 兒童過敏氣喘風濕科[6]

11:26～11:50　討論

附加研討會
台灣兒童肺炎鏈球菌鏈預防新展望

日期：民國115年4月18日(星期六)
時間：12:00～13:30
地點：(2F)201A、B、C會議室

主持人：曹伯年醫師、穆淑琪醫師

12:00～12:10　1. 開幕致詞
曹伯年醫師
台大兒童醫院

12:10～13:00　2. 肺炎鏈球菌感染症：老朋友換了新面孔
林千裕醫師
新竹市立馬偕兒童醫院

13:00～13:30　3. 肺炎鏈球菌感染症之預防策略
林湘瑜醫師
中國醫藥大學兒童醫院

第二單元：腸胃學、營養學

日期：民國115年4月18日(星期六)
時間：13:40～15:30
地點：(2F)201A、B、C會議室

主持人：楊俊仁、賴明瑋

13:40～13:47　17. 台灣慢性 B 型肝炎 HBsAg 血清轉陰之宿主遺傳決定因子： 以全基因體關聯分析的研究
楊中翔[1]、張美惠[2,3]、倪衍玄[2,3]、陳慧玲[2,3]、張凱琪[2]、戴季珊[2]、吳嘉峯[2,*]
國軍桃園總醫院小兒科[1];國立台灣大學醫學院附設醫院小兒部[2];國立台灣大學醫學院附設醫院肝炎研究中心[3]

13:47～13:54　18. 兒童發炎性腸道疾病中鐵缺乏的盛行率及其影響
吳萬泰、戴季珊、張凱琪、陳慧玲、倪衍玄、吳嘉峯
國立臺灣大學醫學院附設醫院兒童醫院小兒部

13:54～14:01　19. 嬰兒及孩童的總膽管囊腫：台灣單一醫學中心 30 年的經驗
鄭亦翔[1]、林隆煌[1,2]、蔡欣恬[3]
國泰綜合醫院兒童醫學部[1]; 輔仁大學醫學院[2]; 國泰綜合醫院一般外科[3]

14:01～14:08　20. 早產兒腸道外營養相關性膽汁滯留症之診斷效能與臨床預測因子：單一中心回溯性研究
陳育萱、陳善銘
中山醫學大學附設醫院兒童部 兒童肝膽腸胃科

14:08～14:15　21. 短鏈脂肪酸對泡沫化巨噬細胞表型轉化及去泡沫化潛力之探討
吳宜欣[1]、李貞穎[2]、廖舫敏[1]、林建亨[3]、吳淑芬[1]、陳安琪[1]
中國醫藥大學兒童醫院兒童腸胃肝膽及營養科[1]; 中國醫藥大學兒童醫院 教學研究部[2]; 中國醫藥大學兒童醫院 胸腔暨重症科[3]

14:15～14:30　討論

14:30～14:40　休息

主持人：吳嘉峯、張碧峰

14:40～14:47　22. 兒童與青少年肥胖的生活型態介入：每月門診追蹤策略之單一醫院回溯性研究
張雲傑[1,2,3]、林淑滿[1]、溫翎安[2]、段必純[1]、簡仁宗[1]、謝錦桐[1]、陳淑謐[2]、張永青[1]
羅東博愛醫院小兒科[1]; 羅東博愛醫院 醫學減重中心[2]; 花蓮慈濟醫院 小兒部[3]

14:47～14:54　23. 學齡前兒童心血管代謝風險的預測因子: PATCH 世代研究
花曼津[1]、姚宗杰[2]、蔡明翰[1]、蘇冠文[2]、廖穗綾[1]、陳力振[3]、葉國偉[2]、黃璟隆[2]
基隆長庚紀念醫院小兒科[1]; 林口長庚紀念醫院小兒科[2]; 新北市立土城醫院小兒科[3]

14:54～15:01 24. 超越減重：兒科醫師與校護合作對偏鄉青少年肥胖的校園健康行為介入—16 週對體組成與選擇韌性的影響
蕭宇超[1]、官叔瑜[2]
阮綜合醫療社團法人阮綜合醫院兒科[1];花蓮縣立富里國民中學[2]

15:01～15:08 25. 兒童大腸鏡虛擬實境訓練系統之開發與操作表現
廖舫敏[1,2]、楊東華[3]、陳安琪[1]、吳淑芬[1]、謝凱生[4]
中國醫藥大學兒童醫院兒童肝膽腸胃科[1]、兒童心臟科[4]; 中國醫藥大學公共衛生學系[2]; 中國科技大學[3]

15:08～15:20 討論

15:20～15:30 休息

第三單元：血液學、腫瘤學

日期：民國115年4月18日(星期六)
時間：15:30～16:40
地點：(2F)201A、B、C會議室

主持人：張修豪、劉希哲

15:30～15:37 26. 台灣兒童急性淋巴性白血病 6-mercaptopurine 劑量與藥物基因體學研究
劉希哲[1]、陳世翔[2]、葉庭吉[1]、江東和[2]、侯人尹[1]、張從彥[2]、黃鼎煥[3]、王奕倫[2]、劉兆能[1]、鍾孟哲[1]
馬偕兒童醫院兒童血液腫瘤科[1]; 林口長庚醫院兒童血液腫瘤科[2]; 新竹市立馬偕兒童醫院兒童血液腫瘤科[3]

15:37～15:44 27. 接受高劑量 Methotrexate 治療的兒童白血病患者中，使用 Acetazolamide 可降低 Methotrexate 延遲排泄的風險
王奕倫[1]、張從彥[1]、陳世翔[1]、蕭翌雯[2]、溫玉娟[2]、江東和[1]
林口長庚紀念醫院; 兒童血液腫瘤科[1]、護理部[2]

15:44～15:51 28. 使用 Blinatumomab 治療小兒急性淋巴性白血病之單一中心經驗
王鈦玄、張德高、余登揚、周獻堂、彭慶添、彭慧倫、蘇旻昱
中國醫藥大學兒童醫院兒童血液腫瘤科

15:51～15:58 29. 高風險性髓母細胞瘤移植後使用免疫檢查點抑制劑作為維持治療之可行性與安全性：單一機構經驗
王奕倫[1]、吳杰才[2]、曾振淦[3]、蕭翌雯[4]、張從彥[1]、陳世翔[1]、江東和[1]
林口長庚紀念醫院; 兒童血液腫瘤科[1]、腦神經外科[2]、放射腫瘤科[3]、護理部[4]

15:58～16:05 30. Selumetinib 治療神經纖維瘤第一型相關叢狀神經纖維瘤及低惡度膠質瘤之臨床經驗
侯明欣[1]、李致穎[1]、陳信宏[2]、顏秀如[1]
臺北榮民總醫院小兒血液腫瘤科[1]、神經外科[2]

16:05～16:12　31. 兒童固態腫瘤顱內轉移的臨床特徵與治療預後：單一機構之經驗

黃心柔[1]、陳世翔[1,2]、王奕倫[1,2]、吳杰才[3]、高偉恆[4]、曾振淦[4]、張從彥[1,2]、江東和[1,2]、楊兆平[1,2]、洪悠紀[1,2]

林口長庚紀念醫院兒童內科部[1]、林口長庚紀念醫院兒童血液腫瘤科[2]、林口長庚紀念醫院腦神經外科[3]、林口長庚紀念醫院放射腫瘤科[4]

16:12～16:19　32. 筆尖型射束質子放射治療用於兒童癌症與腦瘤：可行性與局部控制

劉彥麟[1,14,15,#]、郭嘉駿[2,14,19,#]、楊宜珊[3,14,16]、陳淑美[3,14,16]、謝立群[4,14,17]、林宜穎[5,14]、張修豪[6]、顏秀如[7]、巫康熙[8]、黃芳亮[9]、周獻堂[6]、盧孟佑[6]、王唯豪[10]、謝明芸[11]、蘇旻昱[12]、杜佳叡[6]、吳東和[2,19,*]、邱仲峯[2,19,*]、黃棣棟[3,14,18]、J.S. Miser[13,14]、何宛玲[1,14,15,*]、李欣倫[2,14,19,*]

臺北醫學大學附設醫院小兒部[1]、放射腫瘤科[2]、兒童神經外科[3]、影像醫學部[4]、復健科[5]；國立臺灣大學醫學院附設醫院兒童醫院小兒血液腫瘤科[6]；臺北榮民總醫院兒童血液腫瘤科[7]；中山醫學大學附設醫院兒童血液腫瘤科[8]；臺中榮民總醫院兒童血液腫瘤科[9]；彰化基督教兒童醫院兒童血液腫瘤科[10]；高雄榮民總醫院兒童血液腫瘤科[11]；中國醫藥大學兒童醫院兒童血液腫瘤科[12]；美國加州希望之城醫學中心[13]；臺北醫學大學臺北癌症中心兒童腦瘤照護團隊[14]、醫學院醫學系小兒學科[15]、外科學科[16]及放射線學科[17]、臨床醫學研究所[18]；臺北醫學大學質子中心[19]；#同等貢獻作者；*通訊作者

16:19～16:40　討論

第四單元：新生兒學

日期：民國115年4月18日(星期六)
時間：09:00～11:10
地點：(2F)201D、E、F會議室

主持人：朱世明、吳佩玲

09:00～09:07　33. 母體熱暴露改變新生小鼠肺部發炎反應、TRPV 通道表現與脂質代謝
何昇遠[1,2,3]、周琇珠[4]、陳中明[5,6]
國防醫學大學三軍總醫院小兒部[1]、醫學院醫學系小兒學科[2]; 臺北醫學大學臨床醫學研究所[3]、解剖暨細胞生理學科[4]、小兒學科[5]; 臺北醫學大學附設醫院小兒部[6]

09:07～09:14　34. 泡沫狀巨噬細胞釋放之外泌體與 miRNA 在慢性阻塞性肺病中對脂質代謝與發炎反應之調控角色
蔡明倫[1,2,3]、藍智嵩[2,3]、楊曉涵[2]、鄭皓文[2]、陳映廷[2]、邱曉郁[2]、林鴻志[2,4]、王志堯[5,6]、吳世欣[1]
中國醫藥大學生物醫學研究所[1]; 中國醫藥大學兒童醫院新生兒科[2]; 臺中市立老人復健綜合醫院兒科[3]; 亞洲大學附屬醫院兒科部[4]; 中國醫藥大學兒童醫院過敏免疫與微菌叢研究中心[5]; 中國醫藥大學兒童醫院兒童過敏免疫風濕科[6]

09:14～09:21　35. 生命早期抗生素暴露損害了全身性發炎的復原機制：一項幼鼠模式研究
周佳穗[1,2]、鄭玫枝[1,2]
臺北榮民總醫院兒童醫學部新生兒醫療中心[1]; 國立陽明交通大學急重症醫學研究所[2]

09:21～09:28　36. 出生胎齡 ≤29 週之小於胎齡早產兒的呼吸與肺循環表現：台灣全國性世代研究
江名蕙、林湘瑜
中國醫藥大學兒童醫院

09:28～09:35　37. 足月小於胎齡新生兒嚴重程度與短期及長期併發症之關聯：一項全國性世代研究
林怡璇[1]、林湘瑜[1]、邱曉郁[1]、蔡明倫[1]、林鴻志[1,2]
中國醫藥大學兒童醫院新生兒科[1]; 亞洲大學附屬醫院兒科部[2]

09:35～09:42　38. 母體孕期空氣污染暴露對極度早產兒出生表現與出院前預後之影響研究
黃韵淇[1]、陳映廷[1]、沈上博[1]、詹大千[2]、黃虹綾[3]
中國醫藥大學兒童醫院新生兒科[1]; 中央研究院人文社會科學研究中心[2]; 高雄醫學大學附設中和紀念醫院胸腔內科[3]

09:42～10:00　討論

10:00～10:10　休息

主持人：林永傑、張瑞幸

10:10～10:17　39. 生長曲線圖選擇對台灣極低出生體重兒子宮外生長遲緩盛行率與辨別效能之影響：2011-2021 年全國性世代研究
陳筠翰[1]、林彥臻[1]、張弘洋[1,2]、陳佳慧[1,2]、詹偉添[1,2]、曾愷悌[1]、林佳瑩[1,2]、張瑞幸[1,2]、彭純芝[1,2]、許瓊心[1,2]
馬偕兒童醫院兒科部新生兒科[1];馬偕醫學大學醫學系[2]

10:17～10:24　40. 亞洲新生兒加護病房頭部中立擺位實務：290 單位多國調查
鐘浩瑋[1,2,3]、楊書婷[1]、林湘瑜[4]、江明洲[5,6]、吳建儀[7]、陳秀玲[1,8,9]、亞洲新生兒網絡合作[10]
高雄醫學大學附設醫院 小兒部 新生兒科[1]; 高雄醫學大學 醫學院 醫學系 小兒學科[2]; 國立陽明交通大學 工程生物科學學院 生物科技學系 新竹[3]; 中國醫藥大學兒童醫院 新生兒科[4]; 林口長庚紀念醫院 兒童內科部 新生兒科[5]; 長庚大學 醫學院 醫學系[6]; 義大醫院 兒童醫學部[7]; 高雄醫學大學 醫學院 呼吸治療學系[8]; 國立中山大學 醫學院 後醫學系[9]; 亞洲新生兒網絡合作[10]

10:24～10:31　41. 探討台灣足月兒臍帶血維生素 D 濃度與新生兒黃疸之相關性
蔡明倫[1,2,3]、藍智嵩[2,3]、楊曉涵[2]、鄭皓文[2]、陳映廷[2]、邱曉郁[2]、林鴻志[2,4]、王志堯[5,6]、吳世欣[1]
中國醫藥大學生物醫學研究所[1];中國醫藥大學兒童醫院新生兒科[2];臺中市立老人復健綜合醫院兒科[3];亞洲大學附屬醫院兒科部[4];中國醫藥大學兒童醫院過敏免疫與微菌叢研究中心[5];中國醫藥大學兒童醫院兒童過敏免疫風濕科[6]

10:31～10:38　42. 早產兒胎盤病理型態與早期新生兒預後之相關性研究
黃楷菁、曹珮真、周佳穗、蘇映齊
臺北榮民總醫院兒童醫學部

10:38～10:45　43. 早期抗生素暴露、父母健康與社會經濟狀況及都市化程度與足月新生兒自閉症及注意力缺陷/過動症的關聯：全國性研究
李浩遠[1]、林湘瑜[2,3]、蔡明倫[2,3]、沈上博[3]、陳映廷[3]、邱曉郁[4]、鄭皓文[3]、林鴻志[3,4]
為恭紀念醫院小兒科[1];中國醫藥大學臨床醫學研究所[2];中國醫藥大學兒童醫院新生兒科[3];亞洲大學附屬醫院兒科[4]

10:45～10:52　44. 早期抗生素暴露與新生兒或父母相關危險因子與足月新生兒智能障礙及神經發展障礙之關聯：全國性人口基礎研究
李浩遠[1]、林湘瑜[2,3]、蔡明倫[2,3]、沈上博[3]、陳映廷[3]、邱曉郁[4]、鄭皓文[3]、林鴻志[3,4]
為恭紀念醫院小兒科[1];中國醫藥大學臨床醫學研究所[2];中國醫藥大學兒童醫院新生兒科[3];亞洲大學附屬醫院兒科[4]

10:52～11:10　討論

附加研討會
守護兒童健康，鏈結未來防護

日期：民國115年4月18日(星期六)
時間：12:00～13:30
地點：(2F)201D、E、F會議室

主持人：李秉穎醫師

12:00～12:05　1. 開幕致詞
李秉穎醫師
臺大醫院

12:05～12:35　2. 肺炎鏈球菌疾病新局：台灣疾病負擔&流行型別趨勢
陳志榮醫師
林口長庚紀念醫院

12:35～12:45　3. 討論

12:45～13:15　4. 肺鏈疫苗接種新思維：PCV 疫苗的接種策略與演進
黃玉成醫師
林口長庚紀念醫院

13:15～13:25　5. 討論

13:25～13:30　6. 結語
李秉穎醫師
臺大醫院

第五單元：肺臟、急診及重症學

日期：民國115年4月18日(星期六)
時間：13:40～14:50
地點：(2F)201D、E、F會議室

主持人：呂立、曹珮眞

13:40～13:47　45. 以呼出一氧化氮與脈衝震盪法評估比較兒童長新冠之氣道生理與症狀負擔現象
康紫媛[1]、劉小綾[2]、林建亨[3,4]、宋文舉[3]、王志堯[2,5]
中國醫藥大學中醫部[1]; 中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[2]; 中國醫藥大學兒童醫院胸腔暨重症科[3]; 中國醫藥大學生物醫學影像暨放射科學學系[4]; 中國醫藥大學兒童醫院過敏免疫風濕科[5]

13:47～13:54　46. 兒童呼吸道支氣管鏡球囊擴張術於宋氏通氣法下之療效
陳素芳[1,2]、宋文舉[2]、林建亨[2]、陳培敏[3,4]
馬來西亞吉隆坡東姑阿茲莎醫院,(吉隆坡婦女儿童醫院), 小兒科呼吸科[1]; 中國醫藥大學兒童醫院兒童胸腔暨重症科[2]; 菲律賓馬尼拉聖托馬斯大學醫院小兒科呼吸科[3]; 菲律賓馬尼拉中國綜合醫院暨醫療中心小兒科[4]

13:54～14:01　47. 有症狀氣喘兒童之脈衝震盪參數與肺功能指標的相關性研究
朱禹成[1]、謝堂旭[3]、羅時興[3]、吳彥賢[1]、劉怡慶[1,2]、戴任恭[1,2]、吳俊仁[1,2]、徐仲豪[1,2]、陳怡真[2,3]
高雄醫學大學附設中和紀念醫院兒科部[1]; 高雄醫學大學醫學院醫學系兒科學[2]; 高雄醫學大學附設高醫岡山醫院兒科[3]

14:01～14:08　48. 腺樣體肥大兒童之臨床表徵，單一醫學中心橫斷性研究
陳傑賀、陳劍韜、陳德慶
亞洲大學附設醫院兒科部

14:08～14:15　49. 以急性腹痛為表現的兒童睪丸扭轉: 10 年單一醫學中心之經驗
孫培文[1]、林隆煌[1,2]、蔡樹衛[3]
國泰綜合醫院兒童醫學部[1]; 輔仁大學醫學院[2]; 國泰綜合醫院泌尿科[3]

14:15～14:22　50. 降低台灣兒童加護病房中央靜脈導管相關血流感染：在地化管路維護組合措施之應用
吳政宏[1,2]、溫淑如[3]、林怡馨[3]、潘儀[3]、余英豪[2]、王景甲[2]、吳恩婷[2]、呂立[2]、呂俊毅[2]、張鑾英[2]
醫療財團法人好心肝基金會[1]; 國立臺灣大學醫學院附設醫院小兒部[2]、護理部[3]

14:22～14:29　51. 一種新型的峰值吸氣檢測系統
林秉訓[1]、郭宗德[1]、郭彥希[2]、謝凱生[3]
元培醫事科技大學醫學影像放射技術學系,台灣新竹[1];國立成功大學測量工程系,台灣台南[2];中國醫藥大學附設兒童醫院超音波及結構性心臟病中心,台灣台中[3]

14:29～14:50　討論

14:50～15:00　休息

第六單元：感染學

日期：民國115年4月18日(星期六)
時間：15:00～16:50
地點：(2F)201D、E、F會議室

主持人：張龍、張鑾英

15:00～15:07　52. 探討乳酸菌抗過敏蛋白是否透過活化芳香烴受體訊號路徑以修復受損表皮屏障
邱玉婷、劉衍怡、陳俊安、賴奐丞、林曉娟、黃高彬、王志堯
中國醫藥大學兒童醫院兒童感染科

15:07～15:14　53. 以 SP-D 基因剔除小鼠模型探討肺部疾病進展與菌相叢變化之交互關聯性
林曉娟、林芊慧、賴奐丞、邱玉婷、劉衍怡、陳俊安、黃高彬
中國醫藥大學兒童醫院兒童感染科

15:14～15:21　54. 細菌來源胞外囊泡對巨噬細胞極化之影響：發炎反應與免疫調控潛在機制的探索
賴奐丞[1]、陳俊安[1]、邱玉婷[1]、劉衍怡[1]、林曉娟[1]、王志堯[2,3]、黃高彬[1]
中國醫藥大學兒童醫院兒童感染科[1]; 中國醫藥大學兒童醫院兒童過敏免疫風濕科[2]; 中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[3]

15:21～15:28　55. 已撤稿

15:28～15:35　56. 中心靜脈導管抗生素封存療法對革蘭氏陽性菌所致導管相關血流感染管路保留成功之影響
陳心婷[1,2]、紀鑫[1,2,3,4]、邱南昌[1,2,3]、黃瑽寧[1,2,3]、黃競瑩[1,2,3]、張佳容[1,2]、張龍[1,2,3]、龔妍心[1,2]
馬偕紀念醫院小兒科[1]; 馬偕兒童醫院小兒感染科[2]; 馬偕醫學大學醫學院醫學系[3]; 馬偕紀念醫院醫學研究部[4]

15:35～15:50　討論

15:50～16:00　休息

主持人：陳志榮、顏廷聿

16:00～16:07　57. 新生兒出生胃液細菌培養與新生兒敗血症之相關性
簡奕晨[1,2]、紀鑫[1,2,3,4]、邱南昌[1,2,3]、黃瑽寧[1,2,3]、黃競瑩[1,2,3]、張佳容[1,2]、張龍[1,2,3]、龔妍心[1,2]
馬偕紀念醫院小兒科[1];馬偕兒童醫院小兒感染科[2];馬偕醫學大學醫學院醫學系[3];馬偕紀念醫院醫學研究部[4]

16:07～16:14　58. 卡他莫拉菌(Moraxella catarrhalis)於臺灣呼吸道疾病中之年齡分層臨床影響
金彥杰[1]、李岱芬[2]、黃昱璁[2]、何淑媛[2]、胡雅莉[1]、顏廷聿[1,3]、黃冠穎[1,4]、呂俊毅[1]、黃立民[1]、張鑾英[1,3,5]
國立臺灣大學醫學院附設醫院小兒部[1]; 國立臺灣大學醫學院附設醫院檢驗醫學部[2]; 國立臺灣大學醫學院 臨床醫學研究所[3]; 國立臺灣大學醫學院 免疫學研究所[4]; 國立臺灣大學公共衛生學院 流行病學與預防醫學研究所[5]

16:14～16:21　59. 2010–2019 年期間台灣兒童與成人呼吸道融合病毒相關住院之估計
王宜暄[1]、黃品貞[2]、王詩維[2]、陳儒伶[3,4]、張育菁[3,4,5]、鄭靜蘭[3,4]、沈靜芬[2]
國立成功大學醫學系[1];國立成功大學醫學院附設醫院小兒科[2];國立成功大學臨床藥學研究所[3];國立成功大學醫學院附設醫院藥劑部[4];國立成功大學醫療效益研究中心[5]

16:21～16:28　60. 已撤稿

16:28～16:35　61. 中台灣單一醫學中心新生兒 Echoivrus 11 感染病例系列
侯承佑[1]、邱玉婷[2]、劉衍怡[2]、陳俊安[2]、賴奐丞[2]、林曉娟[2]、黃高彬[2]
中國醫藥大學兒童醫院內科部[1], 中國醫藥大學兒童醫院兒童感染科[2]

16:35～16:50　討論

第七單元：心臟血管學

日期：民國115年4月18日(星期六)
時間：09:00～09:40
地點：(1F)102會議室

主持人：傅雲慶、楊明浚

09:00～09:07 62. Fontan 術後病人腔靜脈肺動脈血流和心臟動能相關性的研究
王瑋德 [1]、林璟銘 [1]、相爾傑 [1]、林竹川 [1]、吳銘庭 [2]、彭旭霞 [3]、謝凱生 [4]、翁根本 [1]
高雄榮民總醫院兒童醫學部 [1];高雄榮民總醫院放射線部 [2];國立清華大學生醫工程與環境科學系 [3];中國醫藥大學兒童醫院兒童內科系 [4]

09:07～09:14 63. 無輻射三維電解剖定位系統輔助之兒童右側副路徑導管消融術：中期臨床結果與復發預測因子
范文博 [1]、莊傑貿 [2]、李必昌 [1]、戴以信 [3]、彭瀠萱 [4]、李昱昕 [5]、傅雲慶 [2]、林明志 [2]、詹聖霖 [2]、陳適安 [6,7]
台北榮總兒童醫學部兒童心臟科 [1]; 台中榮總兒童醫學中心兒童心臟科 [2]; 中國醫藥大學兒童醫院兒童心臟科 [3]; 中山醫學大學附設醫院兒童心臟科 [4]; 林口長庚醫院兒童心臟科 [5]; 台中榮總心血管中心 [6]; 中國醫藥大學附設醫院心臟科 [7]

09:14～09:21 64. 可攜式心電圖監測工具於小兒心律不整偵測與臨床處置之角色：比較性研究
許晏騰 [1,3]、曾偉杰 [3]、吳美環 [3]、盧俊維 [3]、吳焜烺 [3,4]、曾愷悌 [2]、邱舜南 [3]
馬偕兒童醫院兒童心臟科 [1]、兒童重症醫學科 [2]; 國立臺灣大學醫學院附設醫院兒童醫院兒童心臟科 [3]; 彰化基督教醫院兒童心臟科 [4]

09:21～09:28 65. 症狀之外：先天性心臟病患者的心律節律監測
許瑛倫 [1]、曾偉杰 [2]、許晏騰 [3]、盧俊維 [2]、吳美環 [2]、吳坤琅 [4]、彭偉峰 [5]、邱舜南 [2]
高雄長庚紀念醫院兒科部 [1];國立台灣大學附設醫院兒科部 [2];台北馬偕紀念醫院兒科部 [3];彰化基督教醫院兒科部 [4];國立台灣大學附設醫院雲林分院兒科部 [5]

09:28～09:40 討論

09:40～09:50 休息

第八單元：醫學人文教育及其他

日期：民國115年4月18日(星期六)
時間：09:50～11:00
地點：(1F)102會議室

主持人：陳慧玲、楊令瑀

09:50～09:57 66. 跨領域非醫學系學生之新生兒急救課程創新：結合團隊導向學習與沉浸式模擬教學之成效分析
陳秀玲 [1,2,3]
國立中山大學醫學院學士後醫學系 [1]、高雄醫學大學附設醫院小兒科部 [2]、高雄醫學大學醫學院呼吸治療學系 [3]

09:57～10:04 67. 醫學生對於生成式人工智慧之認知、臨床應用需求調查
謝凱生
中國醫藥大學兒童醫院

10:04～10:11 68. 以生成式人工智慧審查病歷品質：搶救病歷 (Chart AGAI)™
陳偉德、陳哲圃 [1]、陳哲峰 [2]
中國醫藥大學兒童醫院; 中國醫藥大學附設醫院神經外科 [1]; 樂誠工作室 [2]

10:11～10:18 69. 發展評估圖畫書~親子共讀與發展篩檢的黃金交會
吳淑娟 [1]、小魯文化 [2]
羅東博愛醫院兒科

10:18～10:25 70. 應用毛髮毒物檢測於疑似毒品環境暴露兒少之臨床經驗：以某南部醫學中心為例
林宜靜 [1,2,3]、簡淑惠 [1]、曾麗憑 [1]、劉怡慶 [2,3]、吳彥賢 [2,3]、王藝錚 [2,3]、莊美慧 [4]、徐仲豪 [2,3]
高雄醫學大學附設中和紀念醫院檢驗醫學部 [1]、小兒科部 [2]; 高雄醫學大學附設中和紀念醫院兒少保護區域醫療整合中心 [3]; 高雄市政府社會局家庭暴力及性侵害防治中心 [4]

10:25～10:32 71. 醫院附設兒童住宿式長照機構結合急性後期照護之建置：初期經驗與成果
黃啟南、王中豪、張芳瑗、王培瑋、吳宗儒、方麗容
臺北市立聯合醫院和平婦幼院區小兒科

10:32～10:39 72. 兒科醫師不足時，誰來照護孩子？美國因應兒科住院醫師招收困難、馬里蘭州因應城鄉差距之作為與進階醫療執業人員之角色
喬絲琳戴維斯、夏紹軒、凱瑟琳坎貝兒、伊凡娜哈什曼
馬里蘭大學東岸分校助理醫師學系

10:39～11:00 討論

附加研討會
從治療到預防：益生菌在兒童上呼吸道感染管理中的角色轉變

日期：民國115年4月18日(星期六)
時間：12:00～13:30
地點：(1F)102會議室

主持人：倪衍玄教授

12:00～12:10	1.	開幕致詞 倪衍玄教授 臺大兒童醫院
12:10～12:30	2.	兒童上呼吸道感染治療新思維 穆淑琪教授 新光醫院
12:30～12:40	3.	討論
12:40～13:10	4.	建構特定羅伊氏乳桿菌株在兒童防禦機制中的免疫調節作用 Prof. Diego Peroni Full Professor of Pediatrics, University of Pisa
13:10～13:20	5.	討論
13:20～13:30	6.	結語 倪衍玄教授 臺大兒童醫院

第九單元：神經精神醫學

日期：民國115年4月18日(星期六)
時間：13:40～15:20
地點：(1F)102會議室

主持人：范碧娟、梁文貞

13:40～13:47 73. IRS-1 訊號傳導之細胞特異性效應：內皮細胞 IRS-1 加劇新生兒缺氧缺血性腦傷中的神經血管損傷
杜伊芳[1]、黃名儀[2]、蔣思澈[3]、黃朝慶[1]
國立成功大學醫學院附設醫院 小兒科，醫學院，國立成功大學，臺南，臺灣[1]; 國立成功大學醫學院 臨床醫學研究所，臺南，臺灣[2]; 國家實驗動物中心，國家應用研究實驗室，臺北，臺灣[3]

13:47～13:54 74. 外泌體中的 miRNA 特徵作為新生兒缺氧缺血性腦病變的早期生物標記與治療標靶
杜伊芳[1]、陳嘉興[2]、蔣輯武[3]
國立成功大學醫學院附設醫院小兒科，臺南，臺灣[1]; 義守大學國際學生醫學系，高雄，臺灣[2]; 國立成功大學醫學院分子醫學研究所，臺南，臺灣[3]

13:54～14:01 75. 三七皂苷對泡沫化巨噬細胞表型轉化及去泡沫化潛力之探討
林聖興[1]、洪宣羽[1]、張鈺孜[1]、周宜卿[1]、謝凱生[2]
中國醫藥大學兒童醫院小兒神經科[1]; 中國醫藥大學兒童醫院小兒心臟科[2]

14:01～14:08 76. 建構表型與多基因評分系統以改善台灣漢人注意力不足過動症及其相關共病之診斷
楊紹葳[1]、張鈺孜[1, 2]、林應如[3, 4]、劉鼎元[5]、林聖興[1, 2]、洪宣羽[1, 6]、林建亨[1, 7, 8]、周宜卿*[1, 4]、蔡輔仁**[3, 4, 5, 9]
中國醫藥大學兒童醫院兒童神經科[1]；中國醫藥大學中醫學院學士後中醫學系[2]；中國醫藥大學附設醫院基因醫學部[3]；中國醫藥大學中醫學院中醫學系[4]；中國醫藥大學醫學研究部[5]；中國醫藥大學醫學院醫學系[6]；中國醫藥大學兒童醫院兒童胸腔科[7]；中國醫藥大學生物醫學影像暨放射科學學系[8]；中國醫藥大學兒童醫院醫學遺傳暨兒童新陳代謝內分泌科[9]

14:08～14:15 77. 大麻二酚 (Cannabidiol)於結節硬化症頑固型癲癇之治療經驗
何介良[1]、王杏安[1,2]、蔡政道[1,2]
中山醫學大學附設醫院兒童部[1]; 中山醫學大學醫學系[2]

14:15～14:30 討論

14:30～14:40 休息

主持人：周宜卿、張通銘

14:40～14:47　78. 中醫治療小兒腦損傷之臨床觀察：病例系列研究
王柏文[1]、賴琬郁[1,2]、張鈺孜[2,3]
中國醫藥大學附設醫院中醫部中醫兒科[1];中國醫藥大學中醫學院[2];中國醫藥大學兒童醫院兒童神經科[3]

14:47～14:54　79. 使用台灣兒童發展篩檢量表（PESS）於越南醫院之經驗
紀孝儒、洪焜隆
輔仁大學附設醫院兒科部

14:54～15:01　80. 以嬰幼兒聽覺事件相關電位探討父職參與度與嬰兒導向式語言之關係研究
陳鳳妤[1]、翁仕明[2,3]
光晴復健科診所[1]; 臺北市立萬芳醫院小兒神經科[2]; 臺北護理健康大學語言治療與聽力學系所[3]

15:01～15:08　81. 共讀推廣方式與幼兒語言發展：互動式與教育式策略之比較
王中豪、王培瑋、方麗容
臺北市立聯合醫院和平婦幼院區小兒科

15:08～15:20　討論

15:20～15:30　休息

第十單元：腎臟學

日期：民國115年4月18日(星期六)
時間：15:30～16:40
地點：(1F)102會議室

主持人：邱元佑、蔡宜蓉

15:30～15:37　82. 造成腎小管發育不全之 AGT 基因突變條件式剔除小鼠之分析與治療
曾敏華[1]、林石化[2]
林口長庚紀念醫院兒童內科部腎臟科[1]; 三軍總醫院內科部腎臟科[2]

15:37～15:44　83. 蛋白體分析顯示蛋白尿患者尿液外泌體中細胞黏附相關蛋白之協調性改變
盧姵真[1,2]、廖偉婷[1]、李振豪[1]、許茜甯[3,4]、田祐霖[1,2,5]
高雄長庚紀念醫院 小兒腎臟科[1]; 高雄市立大同醫院 小兒科[2]; 高雄長庚紀念醫院 藥劑科[3]; 高雄醫學大學 藥學院[4]; 長庚大學 醫學院[5]

15:44～15:51　84. 台灣兒童非神經性神經性膀胱之遺傳基礎與臨床特徵：多中心研究
丁肇壯[2]、蔡宜蓉[3]、楊緒棣[4,5]、蔡政道[6,7,8,9]、曾敏華[1]
林口長庚紀念醫院兒童腎臟科[1]; 三軍總醫院小兒部[2]; 台大兒童醫院兒童腎臟科[3]; 台北慈濟醫院泌尿科[4]; 慈濟大學醫學系泌尿學科[5]; 馬偕兒童醫院兒童腎臟科[6]; 馬偕醫學院醫學系[7]; 臺北醫學大學附設醫院兒科部[8]; 臺北醫學大學醫學院醫學系小兒學科[9]

15:51～15:58 85. 兒童泌尿道感染之流行病學及菌血症與復發之危險因子
張瑞文[1,2]、蔡昕霖[2,3]、楊惠馨[2,3]
臺北榮民總醫院兒童醫學部[1];國立陽明交通大學醫學院醫學系[2];臺北榮民總醫院外科部兒童外科[3]

15:58～16:05 86. 腎臟移植後 BK 病毒腎病變病人周邊血液 KIR+CD8+ T 細胞呈現高度表現。
李宗儒、林清淵
中國醫藥大學兒童醫院 兒童腎臟科

16:05～16:12 87. 兒童尿性腹水：潛在致命且常被忽略的尿路併發症
吳冠穎[1]、張北葉[2]、蔡政道[3]、曾敏華[1]
林口長庚兒童腎臟科[1]、林口長庚小兒外科[2];馬偕兒童醫院兒童腎臟科[3]

16:12～16:19 88. 不同母親年齡層之小於胎齡兒出生風險概況：全人口世代研究
田祐霖[1]、許茜甯[2]
高雄長庚紀念醫院兒童腎臟科[1], 藥劑部[2]

16:19～16:40 討論

第十一單元：小兒預防醫學及流行病學

日期：民國115年4月18日(星期六)
時間：09:00～09:40
地點：(1F)103會議室

主持人：林裕誠、陳偉德

09:00～09:07 89. 台灣肥胖兒童臨床特徵與共病症叢集現象：單一中心橫斷性研究
李敏[1]、張芳瑗[1]、陳如瑩[2]、黃啟南[1]
臺北市立聯合醫院和平婦幼院區小兒科[1];愛群兒童成長診所[2]

09:07～09:14 90. 六分鐘步行測試在兒童肥胖的臨床應用：首次使用台灣本土常模進行心肺功能評估
黃啟南[1]、陳如瑩[2]、李敏[1]、張芳瑗[1]
臺北市立聯合醫院和平婦幼院區小兒科[1];愛群兒童成長診所[2]

09:14～09:21 91. 兒童肥胖減重成效預測因子：初始特徵的迷思與持續追蹤的重要性。
張芳瑗[1]、黃啟南[1]、陳如瑩[2]、李敏[1]
臺北市立聯合醫院和平婦幼院區小兒科[1]; 愛群兒童成長診所[2]

09:21～09:28 92. 兒童肥胖門診流失率分析：心理因素比代謝異常更能預測中斷追蹤
陳如瑩[1]、張芳瑗[2]、李敏[2]、黃啟南[2]
愛群兒童成長診所[1];臺北市立聯合醫院和平婦幼院區小兒科[2]

09:28～09:40 討論

09:40～09:50 休息

第十二單元：青少年醫學

日期：民國115年4月18日(星期六)
時間：09:50～10:20
地點：(1F)103會議室

主持人：吳怡磊、羅福松

09:50～09:57　93. GLP-1 RA (Liraglutide) 治療台灣肥胖青少年之安全性與療效：真實世界多中心研究

邱巧凡[1,2]、周莒光[3,4]、胡書瑋[5,6]、黃國晉[7,8]、吳怡磊[9]、鄔翔帆[10]、陳慧玲[8,11]、楊俊仁[12,13]
林口長庚紀念醫院兒童內分泌暨遺傳科[1]; 長庚大學醫學院[2]; 嘉義基督教醫院胃腸肝膽科[3]、減重中心[4]; 佳安醫學診所[5]; 童綜合醫院小兒腸胃科[6]; 國立臺灣大學醫學院附設醫院家庭醫學科[7]; 國立臺灣大學醫學院[8]; 彰化基督教兒童醫院兒童內分泌科[9]; 光田綜合醫院兒科[10]; 國立臺灣大學醫學院附設醫院兒童醫院小兒胃腸科[11]; 新竹市立馬偕兒童醫院兒童胃腸肝膽科[12]; 馬偕醫學大學[13]

09:57～10:04　94. 短期 Liraglutide 治療對肥胖青少年胰島素敏感性及肝臟發炎指數的改善效益分析：一項回溯性研究

胡書瑋[1,2,3]、張庭瑄[4]、蔡維鍵[5]
佳安醫學診所[1]；國立中興大學轉譯醫學博士學位學程[2]；國立中興大學榮興轉譯醫學研究中心[3]；童綜合醫療社團法人童綜合醫院兒童醫學部[4]；禾馨安和婦幼診所[5]

10:04～10:11　95. 長新冠與青少年復原力之關聯：以線性混合模型進行縱貫分析

王怡人[1,2,3,4]、黃素容[1]、盧孟立[4]、鄒小蕙[4]
衛生福利部臺北醫院小兒科[1]；國立陽明交通大學醫學院[2]；中國醫藥大學公共衛生學院[3]；財團法人國家衛生研究院[4]

10:11～10:20　討論

10:20～10:30　休息

第十三單元：內分泌學

日期：民國115年4月18日(星期六)
時間：10:30～11:50
地點：(1F)103會議室

主持人：吳怡磊、羅福松

10:30～10:37　96. 暫時性與永久性先天性甲狀腺低下症：一新生兒篩檢中心的十年回溯性研究
廖曉茹[1]、蔡文友[1]、簡穎秀[1,2]、劉士嶢[1]、李正婷[1]、童怡靖[1]
國立台灣大學醫學院附設醫院小兒部[1]、基因醫學部[2]

10:37～10:44　97. HLA-DRB1 基因強化 HLA-B 基因與兒童葛瑞夫茲氏病的關聯: 案例對照和以家族為基礎的研究
丁瑋信[1,5]、羅福松[2]、林昭旭[3]、吳怡磊[4]、高宇恩[1]、周融[1]、蔡政勳[1]、呂宗恆[1]、陳思妤[1,3]、李燕晉[1,5,6]
馬偕兒童醫院, 兒童內分泌科[1]; 長庚紀念童醫院, 兒童內分泌科[2]; 新竹市立馬偕兒童醫院, 兒童內分泌科[3]; 彰化基督教兒童醫院, 兒童內分泌科[4]; 馬偕醫學大學 醫學院 醫學系[5]; 馬偕紀念醫院 醫學研究部[6]

10:44～10:51　98. 台灣兒童佝僂病之全國流行病學研究：趨勢、亞型特徵與死亡風險因子
朱君浩[1,2]、胡鈞傑[1]、張原輔[1,3]、林建銘[1,2]
國防醫學大學三軍總醫院小兒部[1];國防醫學大學醫學院醫學系小兒學科[2];臺北醫學大學附設醫院兒科部[3]

10:51～10:58　99. 應用系列基因檢測對台灣兒童鈣代謝疾病遺傳病因之全面性研究
康庭瑜[1]、周言穎[1,2]、張聿民[1,2]、潘妤玟[1]、蔡孟哲[1,2]
國立成功大學醫學院附設醫院小兒部[1];國立成功大學醫學院附設醫院基因醫學部[2]

10:58～11:05　100. 連續血糖監測對新診斷第 1 型糖尿病兒童血糖控制的真實世界成效
蔡政勳、李燕晉、黃琪鈺、高宇恩、周融、呂宗恆、陳思妤、丁瑋信
馬偕兒童醫院兒童內分泌科

11:05～11:12　101. 台灣新診斷第 1 型糖尿病兒童的乳糜瀉自體免疫
謝蕙妃[1,2]、羅福松[1]
林口長庚醫院兒童內分泌暨遺傳科[1]; 大里仁愛醫院兒童內科[2]

11:12～11:19　102. 兒童顱內生殖細胞瘤之內分泌後遺症與生長發育評估
陳大揚[1]、蔡文友[2]、劉士嶢[2]、李正婷[2]、童怡靖[2]
中山醫學大學附設醫院兒童部[1]; 國立台灣大學附設醫院兒童醫院小兒部[2]

11:19～11:26　103. 自動化偏差對人工智慧輔助骨齡評估的影響：隨機交叉研究
喻永生[1,2]、林彥懷[3,4]、張天祐[3]
愛群兒童成長門診[1]、振興醫院兒童醫學部[2]、振興醫院影像醫學部[3]、陽明交通大學學院內科部[4]

11:26～11:50　討論

附加研討會
牛羊奶配方營養於子代免疫調節及異位性皮膚炎之臨床研究進展

日期：民國115年4月18日(星期六)
時間：12:00～13:30
地點：(1F)103會議室

主持人：王志堯院長

12:00～12:05　1. 開幕致詞
王志堯院長
中國醫藥大學兒童醫院

12:05～12:30　2. 孕期母親飲食與子代免疫調節能力的相關性探討
王志堯院長
中國醫藥大學兒童醫院

12:30～13:15　3. 探討牛羊奶配方營養對嬰兒在初生第一年於異位性皮膚炎的臨床研究進展
Dr. Elisabeth Weichselbaum
紐西蘭羊乳合作社首席科學家

13:15～13:30　4. 討論與結語
王志堯醫院長
中國醫藥大學兒童醫院

第十四單元：醫學遺傳學、新陳代謝學

日期：民國115年4月18日(星期六)
時間：13:40～16:30
地點：(1F)103會議室

主持人：王仲興、李妮鍾

13:40～13:47 104. 利用斑馬魚模型研究 GALNS 基因變異及其在黏多醣症第四 A 型中的作用
林翔宇[1,2,3,4,5]、林炫沛[1,2,3,4,6]、林正勇[7]、莊志光[2]、張柏翔[2]、塗元榕[2]、李忠霖[1,3,4,5]、蔡懷楨[8]
馬偕兒童醫院兒童遺傳暨新陳代謝科[1]; 馬偕紀念醫院醫學研究部[2]; 馬偕紀念醫院國際罕見疾病中心[3]; 馬偕醫學大學醫學系[4]; 馬偕醫護管理專科學校[5]; 國立台北護理健康大學嬰幼兒保育系[6]; 馬偕醫學大學生物醫學研究所[7]; 輔仁大學醫學院醫學系[8]

13:47～13:54 105. 台灣全國性黏多醣症新生兒篩檢之十年經驗
林翔宇[1,2,3,4,5]、林炫沛[1,2,3,4,6]、李忠霖[1,3,4,5]、莊志光[2]、張雅惠[1,3]、塗元榕[2]、羅允廷[3]、牛道明[7]、陳小然[8]、何慧珍[9]
馬偕兒童醫院兒童遺傳暨新陳代謝科[1]; 馬偕紀念醫院醫學研究部[2]; 馬偕紀念醫院國際罕見疾病中心[3]; 馬偕醫學大學醫學系[4]; 馬偕醫護管理專科學校[5]; 國立台北護理健康大學嬰幼兒保育系[6]; 台北榮民總醫院兒童醫學部[7]; 中華民國衛生保健基金會新生兒篩檢中心[8]; 台北病理中心新生兒篩檢中心[9]

13:54～14:01 106. 跳過肌肉切片直攻基因：全外顯子定序作為兒童肌肉疾病首選檢查的實戰經驗
李忠霖[1,2,3,4,5]、莊志光[6,7]、邱慧菁[1]、張雅惠[1,3]、塗元榕[6]、羅允廷[3]、吳君儀[3]、林翔宇[1,3,4,5,6,8]、林炫沛[1,3,4,6,9]
台北馬偕醫院小兒科[1]; 陽明交通大學臨床醫學研究所[2]; 台北馬偕醫院罕見疾病中心[3]; 馬偕醫學院[4]; 馬偕醫護管理專科學校[5];馬偕醫院醫學研究部生化遺傳研究組[6]; 輔仁大學醫學院[7]; 中國醫藥大學附設醫院醫學研究部[8]; 臺北護理健康大學嬰幼兒保育系所[9]

14:01～14:08 107. 罕見肌肉骨骼疾病個案之 DXA 限制與骨代謝指標（P1NP 與 CTx）之診斷價值研究
陳大揚[1]、翁奴謹[2,4]、蔡孟儒[2]、陳薈安[2]、徐瑞聲[3]、李妮鍾[2,3]、簡穎秀[2,3]、胡務亮[2,3,5]
中山醫學大學附設醫院兒童部[1]; 國立台灣大學附設醫院兒童醫院小兒部[2]; 國立台灣大學附設醫院基因醫學部[3]; 國立台灣大學醫學院醫學系小兒科[4]; 中國醫藥大學附設醫院精準醫療中心[5]

14:08～14:15 108. 軟骨發育不全症兒童早期療育介入時機對功能發展之影響：台灣多中心研究
李忠霖[1,2,3,4,5]、莊志光[6,7]、邱慧菁[1]、張雅惠[1,3]、塗元榕[6]、羅允廷[3]、吳君儀[3]、林翔宇[1,3,4,5,6,8]、林炫沛[1,3,4,6,9]
台北馬偕醫院小兒科[1]; 陽明交通大學臨床醫學研究所[2]; 台北馬偕醫院罕見疾病中心[3]; 馬偕醫學院[4]; 馬偕醫護管理專科學校[5];; 馬偕醫院醫學研究部生化遺傳研究組[6]; 輔仁大學醫學院[7]; 中國醫藥大學附設醫院醫學研究部[8]; 臺北護理健康大學嬰幼兒保育系所[9]

14:15～14:22 109. 六個月以下嬰兒型龐貝氏症患者使用 Avalglucosidase alfa 之安全性評估：單中心回溯性研究
方泓翔 [1,2]、陳薈安 [1,3,4]、徐瑞聲 [1,3,4]、蔡孟儒 [1,3,4]、李妮鍾 [1,3,4]、胡務亮 [1,3,5]、朱紹盈 [6,7]、周言穎 [8]、簡穎秀 [1,3,4*]
臺大醫院小兒部 [1]; 三軍總醫院小兒科部 [2]; 臺大醫院基因醫學部 [3]; 台灣大學醫學院小兒科 [4]; 中國醫藥大學附設醫院精準醫學中心 [5]; 花蓮慈濟醫院小兒部 [6]; 慈濟大學醫學院醫學系 [7]; 國立成功大學附設醫院小兒部 [8]

14:22～14:29 110. Avalglucosidase Alfa 治療轉換後晚發型龐貝氏症之氣道異常改善與多層面臨床結果分析：真實世界病例分析
鍾志宏 [1]、田海寧 [1]、黃韻融 [1]、牛道明 [1,2]、楊佳鳳 [1,2]、陳燕彰 [1,2,3]
台北榮民總醫院兒童醫學部兒童遺傳內分泌科 [1]; 國立陽明交通大學醫學院 [2]; 陽明交通大學臨床醫學研究所 [3]

14:29～14:36 111. Nexviazyme 治療極早期治療嬰兒型龐貝病的長期真實世界結果：30 個月轉換經驗的多方向觀點
田海寧 [1,2]、鍾志宏 [1,3]、黃韻融 [1]、牛道明 [1,4,5,6]、陳燕彰 [1,4,5,6]、楊佳鳳 [1,4,5]
台北榮民總醫院兒童醫學部 [1];戴德森醫療財團法人 嘉義基督教醫院 兒童醫學部 [2];高雄榮民總醫院 兒童醫學部 [3];臺北榮民總醫院罕見疾病研究治療中心 [4];國立陽明交通大學 醫學院 [5];陽明交通大學臨床醫學研究所 [6]

14:36～15:00 討論

15:00～15:10 休息

主持人：朱紹盈、陳燕彰

15:10～15:17 112. 從新生兒分子篩檢探討低磷酸酶症的表現光譜
徐瑞聲 [1,2,3]、蔡孟儒 [1,2,3]、陳薈安 [1,2,3]、簡穎秀 [1,2,3]、胡務亮 [1,2,4]、李妮鍾 [1,2,3]
國立台灣大學醫學院附設醫院基因醫學部 [1]、小兒部 [2]; 國立台灣大學醫學院小兒科 [3]; 中國醫藥大學附設醫院精準醫學中心 [4]

15:17～15:24 113. 普瑞德威利症候群於胰島素誘發低血糖測試中呈現延遲的皮質醇反應：台灣單一中心經驗
賴郁欣 [1]、歐宗穎 [2,3,4]、謝秀盈 [1]、蔡立平 [1,5]
佛教慈濟醫療財團法人台北慈濟醫院小兒科 [1];烏日林新醫院小兒科 [2];佛教慈濟醫療財團法人大林慈濟醫院小兒科 [3]; 國立成功大學醫學院附設醫院基因醫學部 [4];臺北市立聯合醫院和平婦幼院區小兒科 [5]

15:24～15:31 114. 兒童高雪氏症之溶小體酵素缺乏與補體調控變化
林祐延、王仲興
中國醫藥大學附設醫院醫學遺傳暨兒童新陳代謝內分泌科

15:31～15:38 115. 台灣骨肉瘤患者之遺傳性癌症易感基因：單一醫學中心回溯性研究
黃韻融 [1]、田海寧 [1,2]、鍾志宏 [1,3]、侯明欣 [1]、李致穎 [1]、顏秀如 [1]、楊佳鳳 [1,4,5]、牛道明 [1,4,5]、陳燕彰 [1,4,5]
臺北榮民總醫院 兒童醫學部 [1];戴德森醫療財團法人 嘉義基督教醫院 兒童醫學部 [2];高雄榮民總醫院 兒童醫學部 [3];國立陽明交通大學 醫學院 [4];臺北榮民總醫院罕見疾病研究治療中心 [5]

15:38～15:45　116. 尿素循環障礙之臨床照護與治療成效：單一醫學中心經驗
陳薈安[1,2]、徐瑞聲[1,2]、蔡孟儒[1,2]、邱寶琴[3]、胡務亮[1,4]、李妮鍾[1,2]、簡穎秀[1,2]
國立臺灣大學醫學院附設醫院基因醫學部[1]、小兒部[2]；高雄醫學大學附設高醫岡山醫院小兒科[3]；中國醫藥大學附設醫院精準醫療中心[4]

15:45～15:52　117. 單獨基因治療能否達到球狀細胞腦白質退化症的全面治療
林達雄[1,2,3]、何啟生[3,4]
轉譯醫學科[1]、遺傳科, 馬偕紀念醫院[2]; 醫學系，馬偕醫學 大學[3]; 神經科，馬偕兒童醫院[4]

15:52～15:59　118. 輔酶 Q10 補充對威廉斯氏症患者運動與認知功能之影響
鍾志宏[1]、田海寧[1]、黃韻融[1]、牛道明[1,2]、楊佳鳳[1,2]、陳燕彰[1,2,3]
台北榮民總醫院兒童醫學部兒童遺傳內分泌科[1]; 國立陽明交通大學醫學院[2]; 陽明交通大學臨床醫學研究所[3]

15:59～16:06　119. 以長讀長全基因體定序結合光學基因體圖譜揭示平衡染色體重排的隱匿異常
張聿民[1,2]、潘妤玟[2]、蔡孟哲[1,2]、周言穎[1,2]、郭保麟[1,3]
國立成功大學醫學院附設醫院基因醫學部[1];小兒部[2];婦產部[3]

16:06～16:30　討論

教育演講：
兒童青少年肥胖論壇

日期：民國115年4月19日(星期日)
時間：09:00～12:00
地點：(2F)201A、B、C、D、E、F會議室

主持人：洪佑承醫師、詹前俊醫師

09:00～09:10　1. 兒童青少年肥胖疾病介紹與現況
劉喆瑩醫師
萬芳醫院

09:10～09:40　2. 青少年肥胖藥物治療與經驗分享
歐淑娟醫師
卓越皮膚科兒科聯合診所

09:40～10:10　3. 肥胖治療親子溝通術
蘇琮祺心理師
四季心心理諮商所

10:10～10:20　4. 兒科醫師在「青少年肥胖處理」的角色
李宏昌教授
馬偕兒童醫院

10:20～10:50　5. 綜合討論

附加研討會
RSV 與 COVID-19 感染的臨床表現與預防策略

日期：民國115年4月19日(星期日)
時間：12:00～13:30
地點：(2F)201A、B、C、D、E、F會議室

主持人：李秉穎醫師、邱政洵醫師

12:00～12:05　1. 開幕致詞
李秉穎醫師
台大兒童醫院

12:05～12:45　2. 被低估的 RSV：跨年齡呼吸道感染與 mRNA 疫苗平台的臨床觀點
顏廷聿醫師
台大兒童醫院

12:45～13:25　3. 從急性感染到長新冠：兒童 COVID-19 的臨床表現與長期影響
張鑾英醫師
台大兒童醫院

13:25～13:30　4. 討論與結語
邱政洵醫師
林口長庚紀念醫院

醫學的科學、倫理與法律講座：
醫療廣告與法規

日期：民國115年4月19日(星期日)
時間：13:35～14:35
地點：(2F)201A、B、C、D、E、F會議室

主持人：倪衍玄理事長

13:35～14:25　1. 環境衛生安全與嬰幼兒退伍軍人菌感染
盧敏吉教授
中國醫藥大學微免所主任暨附設醫院感染科

14:25～14:35　2. 綜合討論

14:35～14:40　休息

頒獎/會員代表大會/選舉

日期：民國115年4月19日(星期日)
時間：14:40～17:00
地點：(2F)201A、B、C、D、E、F會議室

14:40～17:00　會員代表大會

頒獎

1. 臺灣兒科醫學會獎
   得獎者：陳銘仁醫師(馬偕兒童醫院)

2. 臺灣兒科醫學會兒科醫學教育貢獻獎
   得獎者：陳慧玲醫師(台大兒童醫院)

3. 臺灣兒科醫學會基層醫師服務貢獻獎
   得獎者：塗勝雄醫師(塗勝雄小兒科診所)
   劉漢宗醫師(漢宗小兒科診所)
   蔡梓鑫醫師(陽光小兒科診所)
   (依姓氏筆畫排序)

4. 陳炯霖兒科研究獎助金基金會
   114 年度優秀論文獎
   主治醫師組得獎者：李忠霖醫師(淡水馬偕紀念醫院小兒遺傳科)
   年輕醫師組得獎者：蘇子軒醫師(台大兒童醫院小兒神經科)

5. 年輕研究者獎

選舉

陳炯霖教授講座獎

日期：民國115年4月19日(星期日)
時間：09:00～10:00
地點：(1F)102會議室

主持人：呂鴻基教授

09:00～09:50　1. 我國兒童健康福祉照護之現況與展望
沈靜芬署長
衛生福利部國民健康署

09:50～10:00　2. 綜合討論

專題演講：2025年AHA急救指引更新

日期：民國115年4月19日(星期日)
時間：10:00～12:00
地點：(1F)102會議室

主持人：王玠能教授、楊生湳教授

10:00～10:05　1. 開幕致詞
王玠能教授(成功大學醫學院附設醫院兒童加護科)
楊生湳教授(義守大學附設醫院新生兒科)

10:05～10:55　2. 2025年AHA兒童PALS更新
詹聖霖教授
台中榮民總醫院兒童心臟科

10:55～11:45　3. 2025年AHA新生兒NRP更新
穆淑琪醫師
新光醫院新生兒科

11:45～12:00　4. 綜合討論

附加研討會
嬰幼兒RSV預防新里程

日期：民國115年4月19日(星期日)
時間：12:00～13:30
地點：(1F)102會議室

主持人：鄭名芳醫師、楊俊仁醫師

12:00～12:05　1. 開幕致詞
鄭名芳院長
高雄榮民總醫院臺南分院

12:05～12:25　2. 嬰幼兒 RSV 流行病學概況與後遺症的長遠衝擊
王麗潔醫師
臺大醫院兒童醫院

12:25～12:50　3. RSV 臨床照護的挑戰與複雜決策
曹珮真醫師
臺北榮民總醫院

12:50～13:05　4. Nirsevimab 從臨床試驗邁向實務卓越
張佳容醫師
馬偕兒童醫院

13:05～13:25　5. 綜合討論

13:25～13:30　6. 閉幕致詞
楊俊仁院長
新竹馬偕兒童醫院

附加研討會
健兒門診的新視角:
兒科 x 眼科攜手守護幼兒的視力發展

日期：民國115年4月19日(星期日)
時間：12:00～13:30
地點：(1F)103會議室

主持人：吳佩昌醫師

12:00～12:35　1. 儀器式視力篩查的臨床價值與國際發展
陳語霈醫師
高雄長庚紀念醫院

12:35～12:45　2. 討論

12:45～13:20　3. 補上全人照護的關鍵拼圖：儀器視力篩檢技術與健兒門診的整合應用
洪梓策醫師
洪梓策親子診所

13:20～13:30　4. 討論

附加研討會
腦膜炎雙球菌：幼童風險與疫苗防護策略

日期：民國115年4月19日(星期日)
時間：12:00～13:30
地點：(3F)宴會廳

主持人：鍾美勇主任

12:00～12:05　1. 開幕致詞
鍾美勇主任
高雄長庚醫院新生兒加護病房

12:05～12:40　2. 腦膜炎雙球菌：幼童免疫防護的關鍵缺口
林湘瑜主任
中國醫藥大學兒童醫院新生兒科主任暨加護病房

12:40～13:15　3. 幼童感染風險與自費疫苗：臨床衛教的心法與介入時機
江明洲主任
林口長庚紀念醫院新生兒科

13:15～13:30　5. 討論與結語
鍾美勇主任
高雄長庚醫院新生兒加護病房

一般演講：書面報告

1. 新生兒非脊柱裂型頸椎硬脊膜內脂肪瘤的早期臨床表現：病例報告與手術治療回顧
黃泓銘[1,2]、陳映廷[2,3]、葉郁純[1,2]
中國醫藥大學附設醫院教學部[1]; 中國醫藥大學醫學系[2]; 中國醫藥大學兒童醫院新生兒科[3]

2. 過敏性紫斑症以類似嗜酸性十二指腸炎表現
刁茂盟、于鴻仁
高雄長庚紀念醫院小兒科

3. 以 IL-5 途徑標靶單株抗體控制難治性嗜酸性白血球增多症候群：病例報告
余登揚、彭慧倫、蘇旻昱、彭慶添、張德高、周獻堂
中國醫藥大學附設醫院兒童醫院兒童血液腫瘤科

4. 急性猛爆肝炎關聯之嚴重再生不良性貧血:一青少年案例報告及文獻回顧
王巧伶、陳世彥、陳淑惠、林珮淳
衛生福利部雙和醫院(委託臺北醫學大學興建經營)兒科部

5. 兒科 Salmonella 腎膿瘍之長期腎臟後遺症：持續性腎皮質瘢痕與後續反覆泌尿道感染
陳柏誠[1]、周琬庭[1]、徐鳴遠[1]、潘品合[1,2]
童綜合醫療社團法人童綜合醫院[1]; 國立中興大學學士後醫學系[2]

6. 來自台灣的罕見 INSR 基因相關嚴重症候型胰島素阻抗個案報告
張宇嫻[1,3]、林瑋德[2,4]、王仲興[5,6]、陳映廷[5]
中國醫藥大學 醫學系[1]、學士後中醫學系[2];中國醫藥大學附設醫院 教學部[3]、醫學研究部[4]、兒科部[5];中國醫藥大學兒童醫院 醫學遺傳科／兒童內分泌與代謝科[6]

一般演講：口頭報告

1 **Low IgE and Absence of Sensitization in Non-T2 Asthma: A Cytokine, Transcriptomic, and Bioinformatic Study**

非第二型過敏反應(Non-T2)氣喘之 E 型免疫球蛋白濃度低下與缺乏過敏原致敏化反應：結合細胞激素、轉錄組學與生物資訊學之研究

Jyh-Hong Lee, Yu-Tsan Lin, Li-Chieh Wang, Hsin-Hui Yu, Ya-Chiao Hu, Chun-Min Kang, Yao-Hsu Yang, Bor-Luen Chiang
Department of Pediatrics, National Taiwan University Hospital
李志鴻、林于粲、王麗潔、俞欣慧、胡雅喬、康竣閔、楊曜旭、江伯倫
台大醫院小兒部

Background: Asthma exhibits heterogeneity, including type 2 (T2-high) and non-T2 phenotypes. This study aimed to elucidate the inflammatory mechanisms that drive non-Type 2 asthma, a subtype characterized by low immunoglobulin E levels and negative allergic sensitization. This context considers the complex processes of allergic sensitization.
Methods: We performed bulk RNA-seq in non-T2 (n=11) versus T2-high (n=17) pediatric asthma patients, using GSE145505 dataset to compare and validate our findings. Ingenuity Pathway Analysis (IPA) was applied to identify canonical pathways. We quantified spontaneous secretion of 12 serum cytokines in an independent cohort of pediatric (non-T2: n=50, T2-high: n=142) and adult (non-T2: n=111, T2-high: n=103) asthma. We examined FcεRI and BCR reactome pathways activities. Weighted Gene Co-expression Network Analysis (WGCNA) were conducted for specific gene module. We also quantified spontaneous secretion of 12 serum cytokines in an independent pediatric (non-T2: n=50, T2-high: n=142) and adult (non-T2: n=111, T2-high: n=103) asthma cohort.
Results: IPA core analysis predicted the inhibition of key canonical pathways in non-Type 2 asthma, notably including high-affinity immunoglobulin E receptor (FcεRI) signaling and B-cell receptor (BCR) signaling, with associated downregulation of calcium signaling. Congruently, serum levels of interleukin-4 (IL-4) and interleukin-9 (IL-9), cytokines vital for Type 2 responses, were reduced, while interleukin-2 (IL-2) levels positively associated with non-Type 2 asthma. WGCNA identified a gene module positively correlated with total immunoglobulin E that was downregulated in non-Type 2 asthma; this module included the IL-4 messenger RNA. Furthermore, transcripts for immunoglobulin heavy variable (IGHV), kappa variable (IGKV), and lambda variable (IGLV) gene segments were markedly downregulated.
Conclusions: Our findings suggest a multi-faceted mechanism involving broad inhibition of key sensitization and immunoglobulin E production pathways, explaining the low serum immunoglobulin E levels and absence of allergic sensitization in non-Type 2 asthma.

2 **To Investigate the Protective and Therapeutic Effects of the Immunomodulatory Protein FIP-fve from Flammulina Velutipes on Airway Epithelial Inflammation Induced by Diesel Exhaust PM2.5**

探討金針菇的免疫調節蛋白 FIP-fve 對柴油引擎廢氣 PM2.5 引起的呼吸道上皮發炎的保護與治療效果

Wei-Kai Lin[1,2], Yu-Tzu Lee[3], Jiunn- Liang Ko[3], Hai-Lun Sun[1,2,3], Min-Sho Ku[1,2,3], Pei-Fen Liao[1,2], Ya-Ting Yang[1,2], Yi-Hsuan Yen[1,2], Ko-Huang Lue[1,2,3]
Department of Pediatrics, Chung Shan Medical University Hospital[1], School of Medicine, Chung Shan Medical University[2]; Institute of Medicine, Chung Shan Medical University[3]
林暐凱 [1,2]、李育慈 [3]、柯俊良 [3]、孫海倫 [1,2,3]、顧明修 [1,2,3]、廖培汾 [1,2]、楊雅婷 [1,2]、顏宜萱 [1,2]、呂克桓 [1,2,3]
中山醫學大學附設醫院兒童部 [1];中山醫學大學醫學系 [2]、醫學研究所 [3]

Background: Air pollution, especially fine particulate matter (PM2.5), has become a globally recognized major environmental risk factor threatening respiratory health. The toxicity of PM2.5 is highly related to its sources and chemical composition rather than simply its mass concentration. The immunomodulatory protein from Flammulina velutipes (FIP-fve) has been shown to possess multiple anti-inflammatories and immunoregulatory functions.
Methods: BEAS-2B was used as an in vitro model. Experimental groups included: untreated control (NC); PM2.5 alone (SRM 2975, 50 μg/ml); protection group pretreated with FIP-fve for 24 hours before co-stimulation with PM2.5 for another 24 hours; treatment group exposed to PM2.5 for 24 hours followed by FIP-fve administration; co-culture group exposed simultaneously to PM2.5 and FIP-fve. Cell culture supernatants were collected and detected to analysis the levels of over 100 cytokines, chemokines, and inflammation-related proteins.
Results: PM2.5 alone significantly increased pro-inflammatory cytokines IL-1β, IL-6, and TNF-α (all $P < 0.01$) and the FIP-fve pretreatment group showed a significant decrease in IL-1β (P=0.03), IL-6 (P=0.04), and TNF-α (P=0.02), suggesting protective effects. In the treatment group, IL-6 (P=0.054) showed a decreasing trend but did not reach strict statistical significance, indicating a possibly weaker therapeutic effect than prophylaxis. The simultaneous co-culture group exhibited the most significant inhibition of IL-1β (P=0.008) and TNF-α (P=0.005), demonstrating an immediate and strong anti-inflammatory effect. Regulatory cytokines IL-10 (P=0.02) and TGF-β (P=0.03) were significantly elevated in all FIP-fve treated groups, confirming immunomodulatory potential.
Conclusions: FIP-fve exerts critical protective effects in preventing airway epithelial inflammation induced by diesel-derived PM2.5 and can modulate cytokine responses immediately when co-administered, effectively alleviating inflammation.

3 **Genome-Wide and Polygenic Architecture of Elevated Eosinophils Reveals a Novel rs7646596 Locus and Key Interleukin Pathways**
嗜酸性球升高多基因遺傳架構分析：rs7646596 基因座與白介素訊號途徑之角色

Su-Boon Yong, Chang-Ching Wei, Jiu-Yao Wang
Department of Allergy and Immunology, China Medical University Children's Hospital, Taichung, Taiwan.
楊樹文、魏長菁、王志堯
中醫大兒童醫院小兒過敏免疫風濕科

Background: Eosinophil levels vary widely among individuals, yet the genetic factors contributing to elevated eosinophil proportions are not fully defined.
Methods: We performed a genome wide association study and polygenic risk score analysis in 42,208 participants with eosinophil percentages above 2.5 percent and 120,929 controls with levels at or below 2.5 percent. All models included age, squared age, sex, and ancestry principal components.
Results: A polygenic score built from variants with a discovery threshold of p less than five times ten to the minus five explained an additional 3.14 percent of variance in the elevated eosinophil phenotype. The full model R square was 0.05417 with strong statistical significance. In contrast, using a stricter definition of eosinophils above ten percent yielded minimal predictive value, suggesting that the 2.5 percent cutoff more effectively reflects heritable influences. The genome wide scan for the 2.5 percent phenotype identified several significant loci, including a novel lead variant at rs7646596 located between LINC01565 and RPN1. Additional signals mapped to immune related genes such as MIIP, TNFRSF8, JAK1, IL5RA, IL1RL1, and IL4R.
Conclusions: Defining elevated eosinophils using the 2.5 percent threshold captures the underlying genetic architecture more consistently, and the identified loci underscore the central role of interleukin related pathways in eosinophil regulation.

4 **IL-33 Priming Drives Mitochondrial Dysfunction and Mitochondrial Transfer to Promote Allergen-Induced Epithelial–Mesenchymal Transition**
介白素-33 促發導致粒線體功能障礙與粒線體轉移促進過敏原誘導的上皮-間質轉化

Chih-Hsing Hung[1,2,3,4], Mei-Lan Tsai[4]
Department of Pediatrics, Kaohsiung Medical University Hospital[1]; Department of Pediatrics, Kaohsiung Medical University[2]; Department of Pediatrics, Kaohsiung Municipal Siaogang Hospital, Kaohsiung, Taiwan [3];Research Center for Precision Environmental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan[4]
洪志興 [1,2,3,4]、蔡美蘭 [4]
高雄醫學大學附設醫院小兒部 [1];高雄醫學大學小兒學科 [2];高雄市立小港醫院小兒科 [3];高雄醫學大學精準環境醫學中心 [4]

Background: Airway remodeling underlies asthma progression and irreversible lung function decline. Mitochondrial dysfunction in aiwary bronchial epithelium and subsequent epithelial–mesenchymal transition (EMT) contribute to airway remodeling. Environmental triggers such as house dust mite (HDM) induce epithelial IL-33, but how sequential exposure to IL-33 and allergen affects mitochondrial function and EMT in airway remodeling remains unclear.
Methods: A549 cells were first exposed to IL-33 or HDM and then challenged with the alternate stimulus. Cell migration was assessed by wound-healing assay. Mitochondrial membrane potential, markers of mitochondrial biogenesis, extracellular mitochondrial DNA (mtDNA), and intercellular mitochondrial transfer were evaluated. EMT and mitophagy-related proteins were quantified by Western blot. The effects of commonly used asthma medications—formoterol, budesonide, and their combination—on IL-33 priming were also examined.
Results: IL-33 priming followed by HDM exposure markedly increased epithelial cell migration, whereas single exposures did not. IL-33 preconditioning induced mitochondrial membrane depolarization and suppressed mitochondrial biogenesis upon subsequent HDM challenge, coinciding with extracellular mtDNA release, mitophagy activation, and mitochondrial transfer to neighboring cells. EMT marker expression shifted in parallel with these mitochondrial disturbances. Recipient cells that acquired mitochondria from IL-33–primed donor cells showed increased migration and EMT-related protein changes. Furthermore, formoterol, budesonide, and their combination significantly inhibited IL-33-induced cell migration and mitochondrial transfer.
Conclusions: IL-33 primes airway epithelial cells by disrupting mitochondrial dynamics and promoting mitochondrial transfer, thereby amplifying EMT and migratory responses to subsequent allergen exposure. Moreover, the asthma medications effectively attenuated IL-33–induced mitochondrial transfer, suggesting an additional role for these agents in limiting EMT-associated airway remodeling.

5 **To Explore the Efficacy Evaluation of Umbilical Cord Blood Mesenchymal Stem Cell-Derived Exosomes in Atopic Dermatitis: Immune Modulation, Skin Inflammation Repair, and Side Effects**
探討臍帶血間質幹細胞來源的外泌體對異位性皮膚炎療效評估：免疫調解、皮膚發炎修護、副作用

Hau-Jyun Jian[1,2], Yu-Tzu Lee[3], Jiunn-Liang Ko[3], Hai-Lun Sun[1,2,3], Min-Sho Ku[1,2,3], Pei-Fen Liao[1,2], Ya-Ting Yang[1,2], Yi-Hsuan Yen[1,2], Ko-Huang Lue[1,2,3]
Chung Shan Medical University Hospital, Department of Pediatrics, Division of Allergy and Immunology[1];Chung Shan Medical University, School of Medicine[2], Graduate Institute of Medicine[3]
簡浩竣 [1,2]、李育慈 [3]、柯俊良 [3]、孫海倫 [1,2,3]、顧明修 [1,2,3]、廖培汾 [1,2]、楊雅婷 [1,2]、顏宜萱 [1,2]、呂克桓 [1,2,3]
中山醫學大學附設醫院，兒童部，過敏免疫科 [1];中山醫學大學醫學院，醫學系 [2]、醫研所 [3]

Background: AD is a chronic inflammatory skin disease. Current treatments mainly involve topical steroids, but their long-term use raises safety concerns. Recently, umbilical cord blood mesenchymal stem cell-derived (UCB-MSC) exosomes have emerged as a promising therapeutic strategy.
Methods: AD model was established in Balb/c mice by OVA sensitization. Mice were divided into groups receiving UCB-MSC exosome treatment, mometasone as positive control, or saline as negative control. Skin barrier function

was assessed using transepidermal water loss (TEWL) measurement. Cytokine levels in serum and tissue were quantified by ELISA and qPCR. Immune cell populations were analyzed by flow cytometry. Histopathological evaluation and NGS were performed to assess tissue structure and gene expression profiles.
Results: Mice treated with UCB-MSC exosomes showed significant improvement in clinical symptoms, including erythema, edema, scratching behavior, and epidermal thickness, with SCORAD scores reduced by approximately 45% ($p = 0.004$). Skin barrier function significantly recovered, as TEWL decreased by 28% ($p = 0.002$), skin hydration increased by 22% ($p = 0.005$). Levels of pro-inflammatory cytokines were significantly reduced, including IL-4, IL-5, IL-13, and TNF-α. Histological analysis revealed intact stratum corneum, a 30% increase in collagen content ($p = 0.01$), and a marked reduction in inflammatory cell infiltration ($p = 0.006$). Therapeutic efficacy was comparable to that of mometasone, with no significant difference ($p = 0.12$), and no obvious adverse effects were noted in the exosome-treated group.
Conclusions: UCB-MSC exosomes exhibit excellent dual functions of immunomodulation and skin barrier repair, effectively improving clinical symptoms and pathological changes in AD while demonstrating good safety profiles. This novel regenerative therapy offers an innovative treatment approach for atopic dermatitis and holds promise for clinical translation and application.

6 **Different effects and mechanisms of extracellular vesicles derived from mesenchymal stem cells (MEVs) and DLD-1 cancer cells (DEVs) on normal MSCs and PC-12 cancer cells**
間質幹細胞外泌體與癌細胞外泌體對正常與癌細胞不同作用及其作用機轉研究

Kuender D. Yang[1,2], Chia-Hsueh Lin[1,2], Chie-Pein Chen[3]
Mackay Children's Hospital [1]; Institute of Clinical Sciences, National Yang Ming Chao Tong University [2]; Departments of Obstetrics and Medical Research, Mackay Memorial Hospital [3]
楊崑德 [1,2]、林佳學 [1,2]、陳治平 [3]
馬偕兒童醫院 [1];陽明交通大學臨醫所 [2];馬偕紀念醫院婦產科、醫研部 [3]

Background: Extracellular vesicles (EVs) derived from cancer cells implicated in tumor progression and immune modulation should be different from those derived from umbilical cord mesenchymal stem cells (MEVs) in terms of cell proliferation, metabolism and signal transductions. We have previously shown that MEVs modulated Bacillus Calmette-Guerin (BCG) -induced trained immunity via pAKT and pSTAT-3 pathway activation. In this study, we have investigated whether effects and mechanisms of MEVs on cell growth, metabolism and signal transductions are different from those (DEVs) from DLD-1 cancer cells.
Methods: The EVs modulations of cell proliferation, metabolism and signal transductions were assessed by cell proliferation assay, metabolic enzyme expression of LDHA, PDH and GLS, and western blot analyses of pAKT, p38, pERK, pSTAT3 and pSTAT5 expression in comparison to total AKT, total STAT3 and beta-actin expression.
Results: Results showed that MEVs significantly ($P < 0.01$; ANOVA) enhanced cell growth of mesenchymal stem cells (MSCs) but suppressed PC-12 cancer cell proliferation ($P < 0.01$; ANOVA); in contrast, DEVs significantly enhanced PC-12 cell proliferation ($P < 0.01$; ANOVA). Both DEVs and MEVs augmented the glucolysis (LHDA) and glutaminolysis (GLS) expression but not PDH expression, indicating enhancement of glucolysis and glutaminolysis. Both DEVs and MEVs induced pAKT, pSTAT-3 and pSTAT-5 activation, but DEVs significantly enhanced pERK activation higher than those of MEVs ($P < 0.05$; Mann Whitney U).
Conclusions: This study has found that MEVs enhanced cell proliferation of normal MSCs but inhibited cancer cell growth. In addition, we found that DEVs enhanced PC-12 cancer cell proliferation, presumably acting through pERK activation. Further studies will validate how MEVs enhanced proliferation of normal MSCs but suppressed PC-12 cancer cell proliferation.

7 **Hypoxia-Derived Extracellular Vesicles from ucMSCs Activate AKT/mTOR Signaling and Modulate Autophagy to Rescue Cell Growth and Senescence**
來自低氧培養臍帶間質幹細胞（ucMSCs）所分泌的細胞外泌體可活化 AKT/mTOR 訊號並調節細胞自噬，以拯救細胞生長及緩解細胞衰老

Chia-Hsueh Lin[1,2], Chie-Pein Chen[3], Kuender D. Yang[1,2]
Mackay Children's Hospital[1];Institute of Clinical Medicine, National Yang Ming Chau Tong University[2];Departments of Obstetrics and Medical Research, Mackay Memorial Hospital[3]
林佳學 [1,2]、陳治平 [3]、楊崑德 [1,2]
馬偕兒童醫院 [1];陽明交通大學臨醫所 [2];馬偕紀念醫院婦產科、醫研部 [3]

Background: Extracellular vesicles (EVs) derived from umbilical cord mesenchymal stem cells (ucMSCs) are critical mediators of intercellular communication and therapeutic regulation. Hypoxic culture conditions enhance the regenerative potential of ucMSCs and alter EV composition. This study examined the effects of hypoxia-derived EVs (hEVs) on AKT/mTOR signaling and autophagy in normoxia-cultured ucMSCs.
Methods: EVs were isolated and characterized by flow cytometry and multiplex bead assays. Senescence markers were assessed by SA-β-gal staining and qPCR, while protein expression of AKT, pAKT, mTOR, p62, LC3B-I/LC3B-II, and NADK was analyzed by Western blot. NAD^+/NADH and $NADP^+$/NADPH ratios were measured enzymatically, and c-MET signaling was inhibited using Tepotinib.
Results: Results showed that hypoxic culture increased HGF levels in EVs and enhanced AKT phosphorylation in normoxic ucMSCs ($p < 0.05$). Treatment with hEVs significantly reduced SA-β-gal ($p < 0.001$) and modulated autophagy-related proteins, with decreased p62 and reduced LC3B-II, indicative of diminished autophagosome accumulation and active autophagic flux. Although glycolytic parameters remained largely unchanged, hEVs upregulated NADK and elevated intracellular NAD^+ and $NADP^+$ ($p < 0.05$). Inhibition of c-MET signaling abrogated AKT activation, suppressed NAD^+ biosynthesis, and impaired autophagic response.
Conclusions: Collectively, hEVs promote cellular rejuvenation primarily through AKT/mTOR activation and

autophagy modulation, underscoring their potential as metabolic modulators in stem cell-based anti-senescence therapies.

8 **Molecular Hydrogen Attenuates Coronary Vasculitis in a Kawasaki Disease Mouse Model via Modulation of ZAP70 and LCK–Associated Immune Pathways**
氫分子透過調控 ZAP70 與 LCK 相關免疫訊號途徑減輕川崎症小鼠模型中的冠狀動脈血管炎

Ho-Chang Kuo[1,2,3], Ying-Hsien Huang[1,2,3], Kuang-Che Kuo[1,2,3], Mindy Ming-Huey Guo[1,2,3]
Department of Pediatrics, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan[1]; Kawasaki Disease Center, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan[2]; College of Medicine, Chang Gung University, Taoyuan, Taiwan[3]
郭和昌 [1,2,3]、黃瀛賢 [1,2,3]、郭光哲 [1,2,3]、郭明慧 [1,2,3]
高雄長庚醫院兒童內科部 [1]; 高雄長庚醫院川崎症中心 [2]; 長庚大學醫學院 [3]

Background: Kawasaki disease (KD) is a systemic vasculitis and a leading cause of acquired heart disease in children. Oxidative stress and excessive free radical production play critical roles in KD pathogenesis. Molecular hydrogen (H_2) is a potent selective antioxidant and free radical scavenger. This study aimed to investigate the molecular mechanisms by which hydrogen gas alleviates vasculitis in a KD mouse model.
Methods: A KD mouse model was established using Lactobacillus casei cell wall extract (LCWE). Mice were treated with hydrogen gas inhalation (N=5 in each group). Aortic tissues were harvested for total RNA extraction and subjected to RNA sequencing. Differentially expressed genes (DEGs) were analyzed using Gene Set Enrichment Analysis (GSEA). Protein–protein interaction networks were constructed using the STRING database. Human transcriptome data (HTA 2.0 array) and DNA methylation data (Illumina M450 array) were used for validation.
Results: LCWE significantly induced left coronary artery (LCA) dilation on days 14, 21, and 28, which was markedly reduced by hydrogen treatment ($p < 0.05$), with the most pronounced effect observed on day 21 ($p < 0.001$). RNA sequencing identified 3,237 candidate genes through GSEA. Pathway analysis revealed significant alterations in the NF-κB signaling pathway, primary immunodeficiency, and Th1, Th2, and Th17 cell differentiation pathways. Venn diagram and STRING analyses identified ZAP70 and LCK as key regulatory genes. Their expression was significantly reduced in KD mice ($p < 0.05$) and restored following hydrogen treatment ($p < 0.01$). Validation using human datasets demonstrated similarly reduced ZAP70 and LCK expression in KD transcriptomic data (both $p < 0.05$) and significant epigenetic alterations in methylation profiles (both $p < 0.01$).
Conclusions: In the LCWE-induced KD mouse model, suppression of ZAP70 and LCK was associated with coronary artery lesions, which were significantly reversed by molecular hydrogen therapy. These findings suggest that molecular hydrogen may represent a promising adjunctive or novel therapeutic strategy for preventing coronary complications in Kawasaki disease.

9 **Association Between Kawasaki Disease and Subsequent Allergic Diseases: A Global TriNetX Cohort Study**
川崎氏症與後續過敏性疾病之關聯性：TriNetX 世代研究

Yung-Chieh Huang[1,2], Wen-Yu Wu[1], Yi-Sin Liou[1], Ming-Chin Tsai[1], Lin-Shien Fu[1,2]
Division of Allergy, Immunology and Rheumatology, Department of Pediatrics, Taichung Veterans General Hospital, Taichung, Taiwan[1]; Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taichung, Taiwan[2]
黃永杰 [1,2]、吳文瑜 [1]、劉宜欣 [1]、蔡明瑾 [1]、傅令嫻 [1,2]
臺中榮民總醫院兒童醫學中心兒童過敏免疫科 [1];國立中興大學醫學院學士後醫學系 [2]

Background: Kawasaki disease (KD) is a systemic vasculitis affecting children. While KD is an acute self-limiting condition, its potential impact on the long-term development of allergic diseases remains controversial. Previous studies, particularly from Asia, have suggested a positive correlation; however, results vary across populations. This study aims to evaluate the risk of developing allergic diseases (asthma, allergic rhinitis, and atopic dermatitis) in patients with a history of KD using the TriNetX real-world database.
Methods: We conducted a retrospective cohort study using data from the TriNetX Global Collaborative Network covering the period from 2005 to 2025. The study cohort included patients aged ＜18 years with a diagnosis of KD and concurrent treatment with IVIG. A control cohort comprising pediatric patients diagnosed with immunization and general examination (ICD-10: Z23 and Z00) was identified for comparison. Patients with any allergic diseases diagnosed prior to the index date were excluded. To minimize selection bias, 1:1 propensity score matching (PSM) was performed based on age, sex, race, and prescriptions for allergy-related medications in the preceding year.
Results: After PSM, 3,213 patients were enrolled in each cohort, with a mean age of 2.6 ± 2.5 years. During the 5-year follow-up, the KD cohort exhibited a significantly lower risk of developing allergic diseases compared to the control group (4.7% vs. 9.7%; Risk Ratio 0.479, 95% CI 0.397–0.579, $p < 0.001$). Specifically, incidence rates were lower for asthma (2.0% vs. 3.1%, $p < 0.001$), allergic rhinitis (2.3% vs. 6.4%, $p < 0.001$), and atopic dermatitis (1.1% vs. 2.1%, $p=0.003$). This inverse association remained consistent across stratified racial subgroups. Furthermore, the usage of allergy-related medications was significantly lower in the KD cohort.
Conclusions: Contrary to previous findings in Asian populations, our analysis reveals that KD is associated with a reduced risk of subsequent allergic diseases and allergy-related prescriptions in a global cohort. These divergent results may be attributed to differences in environmental exposures, or the selection of the comparator group.

10 **Latent Structure Analysis of Allergen Sensitization Patterns in Taiwanese and Japanese Children: A Retrospective Study Based on MAST Data**
台灣與日本兒童過敏原致敏型態之潛在結構分析：以回顧性 MAST 資料探討跨國差異與疾病關聯性

Miao-Chun Tsai[1], Xiao-Ling Liu[1], Su-Boon Yong[2], Chang-Ching Wei[2], Jen-Ying Li[1], Jiu-Yao Wang[1,2]
Center for Allergy, Immunology, and Microbiome (A.I.M.), China Medical University Hospital, Taichung, Taiwan, China[1]; Department of Allergy and Immunology, China Medical University Children's Hospital, Taichung, Taiwan[2]
蔡妙君[1]、劉小綾[1]、楊樹文[2]、魏長菁[2]、李貞穎[1]、王志堯[1,2]
中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[1] 中醫大兒童醫院小兒過敏免疫風濕科[2]

Background: Allergic diseases have increased worldwide, especially among children, and represent a growing public health concern. Allergen sensitization patterns strongly influence clinical phenotypes and individualized management. However, most studies are region-specific and rarely examine cross-national differences or apply advanced statistical methods to identify latent sensitization structures.
Methods: This retrospective study analyzed pediatric allergen sensitization data from Taiwan and Japan using the Multiple Antigen Simultaneous Test (MAST), covering more than 30 inhalant and food allergens. Latent class analysis (LCA) was applied to identify unobserved sensitization profiles. Logistic regression models assessed associations between sensitization classes and allergic diseases, including atopic dermatitis, asthma, and allergic rhinitis. Demographic variables such as age, sex, and geographic region were evaluated as predictors of class membership. Anonymized MAST results and clinical records collected between 2020 and 2023 from major medical centers in both countries were included.
Results: LCA identified four distinct allergen sensitization profiles in pediatric populations from Taiwan and Japan. Latent class distributions revealed both shared and country-specific sensitization patterns, reflecting heterogeneity in allergen exposure and immune responses. Certain sensitization classes were more prevalent in specific allergic disease phenotypes, demonstrating differential clustering across atopic dermatitis, asthma, and allergic rhinitis. Cross-national comparisons further indicated that while some sensitization patterns were conserved, others were influenced by regional or environmental factors.
Conclusions: This cross-national analysis identifies distinct and shared pediatric allergen sensitization profiles in Taiwan and Japan and demonstrates differential associations between sensitization classes and allergic disease phenotypes. These findings support the use of latent class analysis for risk stratification and provide a foundation for region-specific prevention strategies and personalized management of pediatric allergic diseases in East Asia.

11 **Sex-Specific Risk of Juvenile Idiopathic Arthritis Following 9-Valent HPV Vaccination: A Real-World Cohort Study Before and During the COVID-19 Pandemic**
九價人類乳突病毒疫苗接種後幼年型特發性關節炎之性別差異風險：COVID-19 大流行時期與前期的世代研究

Ming-Chin Tsai[1], Wen-Yu Wu[1], Yung-Chieh Huang[1,4], Hsin-Hua Chen[2,4], Chiann-Yi Hsu[3], Lin-Shien Fu[1,4]
Department of Pediatrics, Taichung Veterans General Hospital[1] 、 Division of Allergy, Immunology and Rheumatology, Department of Medicine[2]、Department of Medical Research[3]; Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University[4]
蔡明瑾[1]、吳文瑜[1]、黃永杰[1,4]、陳信華[2,4]、徐倩儀[3]、傅令嫻[1,4]
臺中榮民總醫院、兒童醫學中心[1]、內科部過敏免疫風濕科[2]、醫學研究部[3]; 國立中興大學醫學院學士後醫學系[4]

Background: Since September 2025, Taiwan has begun administering the HPV9 vaccine to adolescent males. Given that, since the introduction of HPV vaccination in Taiwan, a number of cases have claimed an association between HPV vaccination and the development of juvenile idiopathic arthritis (JIA), this study primarily aims to investigate the incidence of JIA following HPV9 vaccination in adolescent males and to compare it with that in age-matched females. In addition, differences in JIA incidence before and during the COVID-19 pandemic will be evaluated.
Methods: This retrospective cohort study used data from the TriNetX U.S. Collaborative Network between 2016 and 2023. Children aged 9–13 years who received HPV9 vaccination were compared with unvaccinated controls during two periods: the prepandemic period (2016–2019) and the pandemic period (2020–2023). Propensity score matching (1:1) was performed for age, race, prior musculoskeletal diagnoses, and anti-inflammatory medication use. The incidence of new-onset JIA was assessed using Cox proportional hazards models and Kaplan–Meier survival analyses at 6, 12, 24, and 36 months after vaccination or index date.
Results: Among girls, HPV9 vaccination was associated with a significantly lower risk of JIA in both the pre-pandemic and pandemic cohorts (HR 2016–2019, 0.32 [95% CI 0.16–0.66]; HR 2020–2023, 0.32 [95% CI 0.16–0.62]). Among boys, HPV9 vaccination was not associated with an increased risk of JIA (HR 2016–2019, 1.29 [95% CI 0.32–5.22]; HR 2020–2023, 0.64 [95% CI 0.31–1.31]). Direct comparison between vaccinated girls and boys showed no significant difference in JIA risk during the pandemic period. In contrast, among unvaccinated controls, girls consistently exhibited a higher incidence of JIA than boys in both periods. No modification of JIA risk attributable to the COVID-19 pandemic was observed in either sex.
Conclusions: HPV9 vaccination was not associated with an increased risk of JIA in either girls or boys and was consistently associated with a lower observed risk among girls. The COVID-19 pandemic did not alter this association. These findings support the immunological safety of HPV9 vaccination across sexes in real-world clinical practice

12 **Vitamin D Status in Juvenile Idiopathic Arthritis: Associations with Disease Duration, Bone Turnover Markers, and Bone Mineral Density**
兒童特發性關節炎患者維生素 D 狀態：與病程、骨轉換指標及骨密度之關聯

Yung-Chi Wang[1], Chun-Chun Gau[1,2], Chih-Chen Chang[1,3], Jing-Long Huang[1,2], Wen-I Lee[1,2], Kuo-Wei Yeh[1,2], Liang-

Shiou Ou[1,2], Chao-Yi Wu[1,2]
Chang Gung University College of Medicine, Taoyuan, Taiwan[1], Division of Allergy, Asthma, and Rheumatology, Department of Pediatrics[2], Department of Medical Imaging and Intervention[3], Chang Gung Memorial Hospital
王泳淇 [1]、高純淳 [1,2]、張志丞 [1,3]、黃璟隆 [1,2]、李文益 [1,2]、葉國偉 [1,2]、歐良修 [1,2]、吳昭儀 [1,2]
長庚大學醫學院 [1]；林口長庚紀念醫院兒科內科部兒童過敏氣喘風濕科 [2]、急重症影像診療科 [3]

Background: Vitamin D plays crucial roles in immune regulation and bone metabolism. While hypovitaminosis D has been reported in various rheumatic diseases, comprehensive data on its prevalence and clinical correlates in juvenile idiopathic arthritis (JIA) remain limited.
Methods: In this cross-sectional study, patients with JIA and age-matched healthy controls were enrolled. Clinical manifestations, medication exposure and disease status were obtained from medical record review. Serum 25(OH)D was measured and categorized as deficient ($<$ 20 ng/mL), insufficient (20-29 ng/mL), or optimal (≥30 ng/mL). Inflammatory markers (IL-6, TNF-α, IL-1β, ESR, hsCRP), and bone turnover markers (osteocalcin, CTX, bone ALP, RANKL/OPG, ACP5b) were assessed. Lumbar spine BMD was assessed by DEXA.
Results: Ninety-four JIA patients (M:F = 54:40; age 15.9 ± 7.0 years) including enthesitis-related arthritis (n = 46), polyarticular (n = 21), oligoarticular (n = 16), and systemic JIA(n = 9) were recruited. Mean 25(OH)D levels was lower in JIA than in controls (18.98 ± 7.01 vs 22.24 ± 5.78 ng/mL; p = 0.001). Vitamin D deficiency was present in 62.8% of JIA patients, insufficiency in 30.8%, and only 6.4% achieved optimal levels. The prevalence of hypovitaminosis D did not differ significantly among JIA subtypes (p = 0.339). Lower 25(OH)D levels were associated with longer disease duration (ρ = -0.235, p = 0.023) and with prolonged corticosteroid exposure ($>$ 3 months) (16.94 vs 20.37 ng/mL, p = 0.011). Serum 25(OH)D correlated positivity with bone turnover markers, including CTX (ρ = 0.221, p = 0.032) and osteocalcin (ρ = 0.272, p = 0.010) . Lower vitamin D status was also associated with reduced lumbar spine BMD (Z-scores: -0.549 ± 1.326 in deficient vs -0.100 ± 0.400 in optimal groups).
Conclusions: Vitamin D deficiency affects nearly two-thirds of JIA patients across subtypes. It's associations with longer disease duration, corticosteroid exposure, altered bone turnover, and reduced BMD support routine attention to vitamin D status in clinical care and future studies to clarify causality and the impact of supplementation.

13 **Analysis of Immune Function and Autoimmune Features in Female Carriers of X-linked Chronic Granulomatous Disease**
性聯遺傳慢性肉芽腫病女性帶因者之免疫功能與自體免疫特徵分析

Yu-Chien Wang[1], Ching-Wei Lin[1], Chih-An Chen[1], Miao-Shan Lin[2], Wan-Ting Cheng[2], Chi-Chang Shieh[1,2]
Department of Pediatrics, National Cheng Kung University Hospital[1]; Institute of Clinical Medicine, National Cheng Kung University[2]
王瑀謙 [1]、林靜微 [1]、陳志安 [1]、林妙珊 [2]、鄭婉廷 [2]、謝奇璋 [1,2]
國立成功大學醫學院附設醫院小兒部 [1]; 國立成功大學臨床醫學研究所 [2]

Background: Female carriers of X-linked Chronic Granulomatous Disease (X-linked CGD) are traditionally considered asymptomatic. However, random X-chromosome inactivation (lyonization) can lead to impaired immune function and autoimmune manifestations. This study analyzes the clinical spectrum, laboratory profiles, and immune function in five female carriers from families with X-linked CGD .
Methods: We conducted clinical and laboratory analyses of five female carriers (age 9–54 years). Evaluations included CBC, inflammatory markers (CRP, ESR), immunoglobulin levels, and lymphocyte subset analysis (CD3, CD19, CD4, CD8, NK cells). Autoimmune screening (ANA, dsDNA, ENA, C3/C4, RF, antiphospholipid antibodies) and thyroid function were assessed. Granulocyte reactive oxygen species (ROS) production was quantified using DCFDA/PMA flow cytometry, and CYBB mutations were confirmed via genetic analysis .
Results: Flow cytometry revealed distinct mosaicism in neutrophil ROS production among carriers, with the proportion of functional (DCFDA+) granulocytes being as low as 12.4% to 23.8% in symptomatic individuals. Clinical manifestations ranged from recurrent oral ulcers and arthritis to more severe complications, including bronchiectasis, lung abscess, and pulmonary fibrosis. Notably, inversion of the CD4/CD8 ratio ($<$ 1.0) was observed in younger and middle-aged carriers, suggesting that chronic inflammatory stress from innate immune defects leads to early adaptive immune dysregulation. Laboratory evidence of autoimmunity included positive antinuclear antibodies (ANA), rheumatoid factor (RF), lupus anticoagulant, and hypergammaglobulinemia (IgG up to 1830 mg/dL).
Conclusions: X-linked CGD carriers exhibit a broad clinical spectrum from minor infections to severe inflammatory phenotypes. Monitoring ROS production levels and long-term surveillance for autoimmune features are essential. Future prospective follow-up focusing on quantitative DCFDA+ measurement, alongside systemic monitoring of immune profiles and autoimmune markers, may facilitate determination of ROS thresholds and prevent irreversible damage from immune dysregulation.

14 **Clinical Features and Diagnostic Challenges of Pediatric Chronic Recurrent Multifocal Osteomyelitis: A Case Series from Taiwan**
台灣兒童慢性復發性多灶性骨髓炎：臨床表現與診斷挑戰之病例系列

Serena Cheng[1], Chao-Yi Wu[1,2], Chih-Chen Chang[3], Kuo-Wei Yeh[1,2], Tsung-Chieh Yao[1,2], Liang-Shiou Ou[1,2], Chi-Teng Tseng[4], Jing-Long Huang[1,2]
Chang Gung University College of Medicine, Taoyuan, Taiwan[1]; Division of Allergy, Asthma, and Rheumatology, Department of Pediatrics, Chang Gung Memorial Hospital, Taoyuan, Taiwan[2]; Department of Medical Imaging and Intervention, Chang Gung Memorial Hospital, Taoyuan, Taiwan[3]; Department of Pediatrics, Chang Gung Memorial Hospital, Keelung Branch, Keelung, Taiwan[4]
鄭喬勻 [1]、吳昭儀 [1,2]、張志丞 [3]、葉國偉 [1,2]、姚宗杰 [1,2]、歐良修 [1,2]、曾吉騰 [4]、黃璟隆 [1,2]
長庚大學醫學院 [1]; 長庚紀念醫院兒科過敏氣喘風濕科 [2]; 長庚紀念醫院急重症影像診療科 [3]; 長庚紀念醫院基隆分

院小兒科 [4]

Background: Chronic recurrent multifocal osteomyelitis (CRMO) is a rare autoinflammatory bone disease in children characterized by sterile, relapsing inflammatory bone lesions. Due to nonspecific clinical symptoms and laboratory findings, CRMO is frequently misdiagnosed as infectious osteomyelitis or malignancy, resulting in significant diagnostic delay. In addition, data from Asian populations remain limited. This study aimed to describe the clinical characteristics, diagnosis process, typical imaging findings, treatment, and outcomes of pediatric CRMO patients in Taiwan, with emphasis on diagnostic challenges and delay.
Methods: We conducted a retrospective case series of pediatric patients diagnosed with CRMO at a tertiary medical center in Taiwan between 2016 and 2025. Clinical records, laboratory data, imaging studies, and treatment outcomes were reviewed. Diagnosis was established based on the Jansson diagnostic criteria. Descriptive analysis was performed.
Results: Six pediatric patients were included in this case series, four males and two females. Age at symptom onset ranged from 3 to 15 years old. Diagnostic delay ranged from 6 months to 5 years. All patients fulfilled the Jansson diagnostic criteria. Fever was the most common presenting symptom, occurring in four patients (66.7%), followed by bone pain and swelling in three patients each (50.0%). The tibia and fibula were the most frequently affected sites (66.7%), followed by the femur and mandible (33.3% each). Laboratory findings revealed normal white blood cell counts and elevated inflammatory markers. MRI demonstrated characteristic CRMO lesions in all patients. Bone biopsy, performed in four patients, revealed sterile chronic inflammatory changes. All patients received nonsteroidal anti-inflammatory drugs as initial therapy. Four patients (66.7%) were escalated to methotrexate and two patients (33.3%) to tumor necrosis factor-α inhibitors.
Conclusions: CRMO is a rare autoinflammatory bone disease that is frequently misdiagnosed, resulting in diagnostic delay. Increased awareness, early recognition, in combination with use of MRI, can facilitate timely diagnosis and guide appropriate treatment.

15 **The Atopic Dermatitis Treatment Paradox: Untreated Patients Face Highest Diabetes Risk**
異位性皮膚炎治療的矛盾：未治療患者面臨最高的糖尿病風險

Hao-Yun Chen[1], Chang-Ching Wei[2], Wen-Ling Liao[1], Jiu-Yao Wang[2]
School of Medicine, China Medical University[1]; Division of Allergy, Immunology and Rheumatology, Department of Pediatrics, Children's Hospital, China Medical University Hospital[2]
陳浩瑄 [1]、魏長菁 [2]、廖文伶 [1]、王志堯 [2]
中國醫藥大學醫學系 [1]; 中國醫藥大學兒童醫院 兒童過敏免疫風濕科 [2]

Background: The relationship between atopic dermatitis (AD) management and type 2 diabetes mellitus (T2DM) risk has implications for comprehensive patient care.
Methods: We conducted a nationwide retrospective cohort study using the Taiwan National Health Insurance Research Database (2008–2021), including 432,211 adults with AD and 432,211 matched controls. Cox proportional hazards models estimated adjusted hazard ratios (HRs) for T2DM incidence.
Results: AD patients showed 44% increased T2DM risk versus controls (adjusted HR 1.44, 95% CI 1.41–1.46; P ＜0.001). Risk varied by treatment status: untreated AD patients had highest risk (adjusted HR 2.12, 95% CI 2.03–2.21; P ＜ 0.001), followed by topical therapy (adjusted HR 1.61, 95% CI 1.56–1.66; P＜0.001), while systemic therapy showed no increased risk (adjusted HR 1.01, 95% CI 0.99–1.02). Longer treatment duration was associated with lower T2DM risk for both topical (＞12 weeks: HR 0.63 vs. ＜8 weeks: HR 1.00; P＜0.001) and systemic therapies (＞12 weeks: HR 0.75 vs. ＜8 weeks: HR 1.00; P ＜0.001).
Conclusions: This nationwide study demonstrates significant association between AD and increased T2DM risk. The inverse relationship between treatment duration and T2DM risk warrants further investigation to elucidate underlying mechanisms.

16 **Factors Influencing the Use of Dry Powder Inhalers in Children with Asthma**
影響氣喘孩童選用乾粉吸入器之因素探討

Sin-Ning Hsu[1,2], Yu-Jie Zhang[2,3], Hsiao-Chun Hsieh[2], Gwo-Hwa Wan[2], Tien-Hsiang Lin[1], Tzu-Yu Lin[4], Dah-Chin Yan[5], Syh-Jae Lin[6]
Department of Respiratory Therapy, Lin-Kou Chang Gung Memorial Hospital[1]; Department of Respiratory Therapy, Chang Gung University[2]; Department of Respiratory Therapy, Keelung Chang Gung Memorial Hospital[3]; Department of Pharmacy, New Taipei Municipal Tucheng Hospital[4]; Department of Pediatrics, Taipei Chang Gung Memorial Hospital[5]; Division of Pediatric Allergy, Asthma and Rheumatology, Lin-Kou Chang Gung Memorial Hospital[6]
許芯寧 [1,2]、張郁婕 [2,3]、謝筱菩 [2]、萬國華 [2]、林天祥 [1]、林子鈺 [4]、顏大欽 [5]、林思偕 [6]
林口長庚醫院 呼吸治療科 [1];長庚大學 呼吸治療學系 [2]; 基隆長庚醫院 呼吸治療科 [3];新北市立土城醫院 藥劑科 [4]; 台北長庚醫院 兒童內科 [5]; 林口長庚醫院 兒童過敏氣喘風濕科 [6]

Background: Dry powder inhalers (DPIs) require adequate inspiratory flow to ensure effective drug delivery, which may limit their use in younger children with asthma. However, age recommendations for DPI use vary across clinical guidelines, and objective assessment of DPI suitability in pediatric patients remains challenging. This study aimed to evaluate inspiratory flow in children with asthma aged 4–9 years and to identify factors influencing DPI use.
Methods: A total of 90 children with asthma (54 boys and 36 girls) aged 4–9 years were enrolled. Inspiratory flow was measured using the In-Check Dial under four resistance settings. Demographic data, anthropometric measurements, exercise habits, and experience playing wind instruments were collected. Inspiratory flow was compared across age groups and resistance levels, and correlations with physical characteristics were analyzed.
Results: Inspiratory flow increased significantly with age and was positively correlated with height and body weight. Under high-resistance conditions, girls demonstrated higher

inspiratory flow than boys. Children aged 7–7.9 years showed significantly higher inspiratory flow than those aged 4–4.9 years across all resistance levels, while children aged 8–9.9 years also demonstrated higher flow under higher resistance conditions. Experience playing wind instruments was associated with higher inspiratory flow at Medium Low resistance. Exercise habits and caregiver-related factors showed no consistent association with inspiratory flow.
Conclusions: Inspiratory flow in children with asthma is influenced by age, sex, height, and body weight. Based on measured inspiratory flow and In-Check Dial G16 recommendations, children aged 5–5.9 years may be suitable for DPIs with resistance up to Medium High, while those aged 4–4.9 years may be appropriate for DPIs with Medium Low to Medium resistance. These findings support age- and physiology-based selection of DPIs in pediatric asthma management. Further studies in children with moderate to severe asthma are warranted.

17 **Host Genetic Factors of HBsAg Seroclearance of Chronic Hepatitis B: A Genome-Wide Association Study in Taiwan**
台灣慢性 B 型肝炎 HBsAg 血清轉陰之宿主遺傳決定因子： 以全基因體關聯分析的研究

Chung-Hsiang Yang[1], Mei-Hwei Chang[2,3], Yen-Hsuan Ni[2,3], Huey-Ling Chen[2,3], Kai-Chi Chang[2], Chi-San Tai[2], Jia-Feng Wu[2,*]
Department of Pediatrics, Taoyuan Armed Forces General Hospital, Taoyuan, Taiwan[1]; Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan[2];Hepatitis Research Center, National Taiwan University Hospital, Taipei, Taiwan[3]
楊中翔 [1]、張美惠 [2,3]、倪衍玄 [2,3]、陳慧玲 [2,3]、張凱琪 [2]、戴季珊 [2]、吳嘉峯 [2,*]
國軍桃園總醫院小兒科 [1];國立台灣大學醫學院附設醫院小兒部 [2];國立台灣大學醫學院附設醫院肝炎研究中心 [3]

Background: HBsAg seroclearance in chronic hepatitis B (CHB) is associated with reduced risks of liver fibrosis, cirrhosis, and hepatocellular carcinoma (HCC). However, spontaneous or treatment-induced HBsAg seroclearance remains rare. Although previous genome-wide association studies (GWAS) and candidate-gene research have identified genetic variants related to HBV susceptibility and natural infection outcomes, their relevance to achieving HBsAg seroclearance has not been comprehensively evaluated. This study aims to investigate host genetic determinants of HBsAg seroclearance in CHB patients in Taiwan with GWAS.
Methods: We enrolled 479 individuals with chronic hepatitis B, including 66 patients who achieved HBsAg seroclearance and 413 patients with persistent CHB serving as controls. All participants were followed regularly at the Department of Pediatrics, National Taiwan University Hospital (NTUH), between 1986 and 2025. Chronic HBV infection was defined as HBsAg positivity for more than six months. To minimize genetic relatedness, only one individual per family was included in the analysis.
Results: At baseline, 403 participants (84.1%) were HBeAg-positive, and 76 (15.87%) were HBeAg-negative. Overall, 151 patients (31.5%) had received antiviral therapy during the follow-up. GWAS analysis identified a suggestive association between the rs7187438 C allele and HBsAg seroclearance in patients with CHB (Gene: TSC2, odds ratio = 2.73, $p = 6.6 \times 10^{-6}$). TSC2 encodes a tumor suppressor that negatively regulates mTORC1 signaling and plays a role in the metabolic programming and effector function of $CD8^+$ T cells.
Conclusions: This GWAS suggests that host genetic variation in *TSC2* may contribute to HBsAg seroclearance in chronic hepatitis B. These findings provide new insights into HBV–host interactions and may inform future studies on host determinants of viral clearance and disease progression.

18 **The prevalence and impact of iron deficit in pediatric inflammatory bowel disease**
兒童發炎性腸道疾病中鐵缺乏的盛行率及其影響

Wan-Tai Wu, Chi-San Tai, Kai-Chi Chang, Huey-Ling Chen, Yen-Hsuan Ni, Jia-Feng Wu
Department of Pediatrics, National Taiwan University Children's Hospital, Taipei, Taiwan
吳萬泰、戴季珊、張凱琪、陳慧玲、倪衍玄、吳嘉峯
國立臺灣大學醫學院附設醫院兒童醫院小兒部

Background: Pediatric inflammatory bowel disease (PIBD) is rising in prevalence across the Asia-Pacific region, including Taiwan. Nutrition is closely linked to IBD, with growing evidence suggesting a role in disease development and progression. Vitamin D has been associated with both nutritional status and inflammatory activity. Other nutrients, such as iron, folate, and vitamin B12, may also be relevant, but data on the nutritional profiles of Taiwanese pediatric IBD patients are still scarce.
Methods: We conducted a retrospective review of pediatric IBD patients (≤18 years at diagnosis) treated at a single medical center in Taiwan from 2017 to 2025. A total of 70 patients including Crohn's disease (CD) and ulcerative colitis (UC) were included. Nutritional parameters—serum vitamin D, folic acid level and iron profile—were assessed at the time of diagnosis and after treatment. Subsequent use of advanced therapies, including biologic agents, were evaluated.
Results: At baseline, patients with CD had significantly lower median folate levels than those with UC. Median vitamin D levels in both diseases and iron levels in CD were below normal limits. After treatment, median vitamin D levels in UC and iron levels in CD improved to within the normal range. Nevertheless, post-treatment serum vitamin D levels were significantly higher in UC than in CD. UC patients showed significant improvement in vitamin D and iron deficiencies after treatment. In predictive analyses, folate <8.5 ng/mL, vitamin D <28 ng/mL, and iron <51 μg/dL were each associated with the use of advanced therapy in pediatric IBD. However, when analyzed simultaneously along with disease type, only iron deficiency remained an independent predictor of advanced therapy use.
Conclusions: Vitamin D and iron deficiencies are common at diagnosis in PIBD patients in Taiwan and may improve significantly after treatment, emphasizing the importance of screening and correction. Although several micronutrient deficiencies were individually associated with increased use of advanced therapy, iron deficiency emerged as the only independent predictor.

19 **Choledochal Cysts in Infants and Children: Experiences over a 30-year Period at a Single Institution**
嬰兒及孩童的總膽管囊腫：台灣單一醫學中心 30 年的經驗

Yi-Hsiang Cheng[1], Lung-Huang Lin[1,2], Hsin-Tien Tsai[3]
Department of Pediatrics, Cathay General Hospital, Taipei, Taiwan [1]; School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan [2]; Department of General Surgery, Cathay General Hospital, Taipei, Taiwan [3]
鄭亦翔[1]、林隆煌[1,2]、蔡欣恬[3]
國泰綜合醫院兒童醫學部[1]; 輔仁大學醫學院[2]; 國泰綜合醫院一般外科[3]

Background: Choledochal cysts present differently in infants compared with older children, yet long-term comparative data remain limited. This study aimed to compare the clinicopathological characteristics and surgical outcomes of infants and older pediatric patients with choledochal cysts.
Methods: We conducted a 30-year retrospective review of all pediatric patients diagnosed with choledochal cysts at Cathay General Hospital. A total of 41 patients were identified and categorized into infants younger than 1 year old (14 patients) and classical pediatric patients aged 1 to 18 years (27 patients). Anatomical subtypes included type IA (28 cases), type IC (8 cases), and type IV A (5 cases). Clinical presentations, laboratory findings, and surgical outcomes were analyzed.
Results: Abdominal pain was common among older children (77.8%) but absent in infants. Median biliary amylase levels were significantly elevated in the pediatric group, whereas no elevation was observed among infants. Most patients underwent choledochocystectomy with Roux-en-Y hepaticojejunostomy. Postoperative outcomes were generally favorable in both groups.
Conclusions: Infants with choledochal cysts demonstrate distinct clinical features compared with older children. Biliary amylase levels may aid in differentiating biliary atresia with cystic dilatation from choledochal cysts in neonates and infants. Radical cyst excision with Roux-en-Y reconstruction provides excellent outcomes across age groups.

20 **Diagnostic Performance and Prediction Models of Parenteral Nutrition-Associated Cholestasis in Preterm Infants: A Single-Center Retrospective Study**
早產兒腸道外營養相關性膽汁滯留症之診斷效能與臨床預測因子：單一中心回溯性研究

Yu-Syuan Chen, Shan-Ming Chen
Division of Pediatric Gastroenterology, Hepatology & Nutrition, Department of Pediatrics, Chung Shan Medical University Hospital, Taichung, Taiwan
陳育萱、陳善銘
中山醫學大學附設醫院兒童部 兒童肝膽腸胃科

Background: Parenteral Nutrition-Associated Cholestasis (PNAC) is a common complication among preterm infants requiring prolonged nutritional support. Owing to its multifactorial pathogenesis, this study evaluates potential risk factors to identify clinical predictors, aiming to optimize the management of parenteral nutrition-dependent infants in the neonatal intensive care unit.
Methods: This retrospective study included preterm infants (gestational age < 37 weeks; birth weight < 2000 g) admitted to our neonatal intensive care unit who received parenteral nutrition for at least 14 days between July 2020 and June 2025. We analyzed demographic characteristics, NITSS scores, major comorbidities, ventilatory support, and parenteral nutritional parameters. PNAC was defined as serum direct bilirubin level ≥ 2.0 mg/dL, or two consecutive measurements > 1.0 mg/dL when total bilirubin levels ≤ 5.0 mg/dL. The diagnostic performance of the predictors was assessed using the receiver operating characteristic (ROC) curve analysis. The logistic regression modeling was performed to identify independent predictors.
Results: Among the 329 infants included, 41 (12.5%) developed PNAC. Within the PNAC group, 25 (61.0%) were male, with a median gestational age of 28.86 weeks (IQR: 26.57–30.43) and a median birth weight of 1080 g (IQR: 860–1345). While multiple clinical and nutritional factors were initially associated with PNAC in univariate analysis, the logistic regression revealed that lower birth weight (OR 0.997; 95% CI: 0.995–0.999; p = 0.017), patent ductus arteriosus (PDA) (OR 3.58; 95% CI: 1.38–9.30; p = 0.009), and higher maximum daily amino acid intake (OR 3.58; 95% CI: 1.14–11.28; p = 0.030) were independent predictors. The ROC curve to evaluate the accuracy of logistic regression model had an AUC of 0.853 (95% CI: 0.799–0.907, p < 0.001).
Conclusions: Lower birth weight, PDA, and higher maximum daily amino acid intake are independent risk factors for PNAC in preterm infants. Given the significant association between high amino acid intake and PNAC, cautious administration and individualized nutritional strategies are essential for high-risk preterm infants to minimize cholestatic complications.

21 **Exploring the Potential of Short-Chain Fatty Acids in Reversing Foam Cell Formation and Modulating Macrophage Phenotypes**
短鏈脂肪酸對泡沫化巨噬細胞表型轉化及去泡沫化潛力之探討

Yi-Hsin Wu[1], Jen-Ying Li[2], Fang-Min Liao[1], Chien-Heng Lin[3], Shu-Fen Wu[1], An-Chyi Chen[1]
Division of Pediatric Gastroenterology, Hepatology & Nutrition, China Medical University Children's Hospital, China Medical University, Taichung, 40447, Taiwan[1]; Department research institute, Children hospital of China Medical University [2]; Division of Pediatric Pulmonology and Critical Care Medicine, China Medical University Children's[3]
吳宜欣[1]、李貞穎[2]、廖舫敏[1]、林建亨[3]、吳淑芬[1]、陳安琪[1]
中國醫藥大學兒童醫院兒童腸胃肝膽及營養科[1]; 中國醫藥大學兒童醫院 教學研究部[2]; 中國醫藥大學兒童醫院胸腔暨重症科[3]

Background: Atherosclerosis is a leading cause of cardiovascular morbidity and mortality. A critical event in disease progression is the transformation of macrophages into lipid-laden foam cells following excessive uptake of oxidized low-density lipoprotein (oxLDL). These foam macrophages accumulate in arterial walls and promote chronic inflammation and plaque instability. Emerging evidence indicates that gut microbial metabolites, particularly short-chain fatty acids (SCFAs), regulate immune and metabolic pathways. SCFAs such as acetate,

propionate, and butyrate exhibit anti-inflammatory and epigenetic effects; however, their roles in modulating foam macrophage phenotype and function remain unclear.
Methods: THP-1–derived macrophages polarized into M0, M1, or M2 states were used to establish foam macrophage models. Foam cell formation was induced by oxLDL, followed by treatment with individual SCFAs (acetate, propionate, or butyrate). Intracellular lipid accumulation was assessed by Oil Red O staining. Cholesterol transport–related genes (ABCA1, ABCG1, CD36) were analyzed by quantitative PCR. Cytokines (IL-1β, TNF-α, IL-10) were measured by ELISA and/or flow cytometry, and surface markers were evaluated to assess polarization.
Results: Pilot experiments confirmed successful establishment of THP-1–derived polarized and foam macrophage models. PMA-differentiated macrophages responded to defined stimuli, and oxLDL treatment induced pronounced foam cell formation, evidenced by significantly increased neutral lipid accumulation measured by Oil Red O staining and OD520.
Conclusions: This study establishes a robust in vitro platform integrating macrophage polarization and foam cell formation, enabling systematic investigation of SCFA-mediated immunometabolic regulation. The model supports evaluation of acetate, propionate, and butyrate on lipid metabolism, inflammatory responses, and macrophage phenotypic plasticity, informing microbiota- or nutrition-based strategies for atherosclerosis.

22 **Monthly Follow-up Strategy for Lifestyle Intervention in Children and Adolescent Obesity: A Retrospective Study at a Single Hospital**
兒童與青少年肥胖的生活型態介入：每月門診追蹤策略之單一醫院回溯性研究

Yung-Chieh Chang[1,2,3], Shu-Man Lin[1], Ling-An Wen[2], Bi-Chun Duan[1], Jen-Chung Chien[1], Chin-Tung Hsieh[1], Shu-Mi Chen[2], Chang, Yung-Ching[1]
Department of Pediatrics, Lotung Poh-Ai Hospital [1]; Medical Weight Management Center, Lotung Poh-Ai Hospital [2]; Department of Pediatrics, Hualien Tzu-Chi Hospital [3]
張雲傑 [1,2,3]、林淑滿 [1]、溫翎安 [2]、段必純 [1]、簡仁宗 [1]、謝錦桐 [1]、陳淑謐 [2]、張永青 [1]
羅東博愛醫院小兒科 [1]; 羅東博愛醫院 醫學減重中心 [2]; 花蓮慈濟醫院 小兒部 [3]

Background: Childhood obesity is linked to metabolic, cardiovascular, and psychological disorders, as well as increased adult mortality. Structured outpatient lifestyle interventions are effective in promoting weight loss and improving long-term outcomes in pediatric obesity. This study evaluated the effectiveness of a monthly follow-up strategy in an outpatient setting for children and adolescents with obesity.
Methods: We retrospectively reviewed medical records from February 2024 to September 2025. Eligible patients were those with obesity who had ≥2 clinic visits within 60 days; those with intellectual disability or behavioral disorders were excluded. Clinical data from eligible patients were reviewed, and only those with a minimum follow-up duration of 3 months were included in the analysis. Data collection included demographic data and anthropometric measures (height, weight, BMI). Subgroup analyses were performed to evaluate the long-term effects of lifestyle modification according to follow-up duration (3–6 months, 6–12 months, and ＞12 months), age, and gender.
Results: Of the 71 patients included in the study, only 29 (40.8%) had monthly outpatient follow-up for a minimum of 3 months. Among the 29 patients (18 boys, 11 girls; mostly aged 8–16 years), 58.6% achieved weight loss and 72.4% showed a reduction in BMI. Follow-up duration was 3–6 months for 19.7% (14/71) of patients, 6–12 months for 15.5% (11/71), and longer than 12 months for 5.6% (4/71). Among patients with 3–6 months of follow-up, 42.9% lost ＞0.5 kg/month and 35.7% gained ＜0.5 kg/month. In the 6–12 months follow-up group, 27.3% lost ＞0.5 kg/month and 36.4% gained ＞0.5 kg/month. When comparing monthly weight loss and height gain across age groups, boys aged 12–14 years demonstrated a mean weight loss of 0.75 kg per month and a mean height gain of 0.58 cm per month.
Conclusions: Monthly follow-up was effective in pediatric obesity management, with boys aged 12–14 years showing the greatest weight loss response.

23 **Predictors of Cardiometabolic Risk in Preschool Children : PATCH Cohort Study**
學齡前兒童心血管代謝風險的預測因子: PATCH 世代研究

Man-Chin Hua[1], Tsung-ChiehYao[2], Ming-Han Tsai[1], Kuan-Wen Su[2], Sui-Ling Liao[1], Li-Chen Chen[3], Kuo-Wei Yeh[2], Jing-Long Huang[2]
Department of Pediatrics, Chang Gung Memorial Hospital, Keelung[1]; Department of Pediatrics, Chang Gung Memorial Hospital, Linkou[2]; Department of Pediatrics, Municipal TuCheng Hospital, Chang Gung Memorial Hospital[3]
花曼津 [1]、姚宗杰 [2]、蔡明翰 [1]、蘇冠文 [2]、廖穗綾 [1]、陳力振 [3]、葉國偉 [2]、黃璟隆 [2]
基隆長庚紀念醫院小兒科 [1]; 林口長庚紀念醫院小兒科 [2]; 新北市立土城醫院小兒科 [3]

Background: Few studies have evaluated cardiometabolic risk (CMR) markers in preschool-aged children.
Methods: Participants were enrolled from the PATCH cohort study. Data concerning maternal pre-pregnancy BMI, breastfeeding practices, and anthropometric data were obtained regularly. At 5 years of age, cardiometabolic risk (CMR) z-scores were calculated using five metabolic variables. Then, children were categorized into low, intermediate and high CMR group according to their CMR z-scores. Logistic regression analyses were used to analyze the relationship between exclusive breastfeeding duration, children's BMI trajectories, and metabolic variables, and to identify the predictors for high CMR z-scores at 5-year-of age.
Results: Although a longer exclusive breastfeeding duration was associated with a significantly slower BMI z-scores change from birth to 5 years and lower body fat percentage at outcome; adjustments for confounders rendered these associations non-significant. Results of the binary logistic regression model indicated that maternal pre-pregnancy BMI (adjusted Beta= 3.12, P=0.007) and greater differences in BMI z-scores between 1−3 (adjusted Beta= 1.90, P=0.001) and 3−5 years (adjusted Beta = 3.04, P＜0.001) were independent predictors of high CMR in our study participants.
Conclusions: Maternal pre-pregnancy obesity or overweight and greater change of BMI z-scores in early childhood predict high CMR at the age of 5 years.

24 **Beyond Weight Loss: A Pediatrician–School Nurse Collaborative, School-Based Behavioral Lifestyle Intervention for Adolescent Obesity in Rural Taiwan: A 16-Week Pilot Study of Body Recomposition and Choice Resilience**

超越減重：兒科醫師與校護合作對偏鄉青少年肥胖的校園健康行為介入—16 週對體組成與選擇韌性的影響

Yu-Chao Hsiao[1], Shu-Yu Kuan[2]
Department of Pediatrics, Yuan's General Hospital, Kaohsiung, Taiwan[1]; Hualien County Fuli Junior High School[2]
蕭宇超[1]、官叔瑜[2]
阮綜合醫療社團法人阮綜合醫院兒科[1];花蓮縣立富里國民中學[2]

Background: Adolescent obesity is an increasing public health concern in Taiwan, especially in rural areas with limited access to intensive weight management and low acceptance of pharmacotherapy. Schools provide an accessible setting for multidisciplinary behavioral interventions. This study evaluated a pilot school-based program integrating pediatricians and school nurses, assessing changes in body composition and behavioral choice resilience.
Methods: Eight adolescents with obesity (ages 14–15) participated in a 16-week, single-arm pre-post study. They received eight bi-weekly one-on-one counseling sessions with a pediatrician, supported by a school nurse for physical activity planning. Body composition was measured using bioelectrical impedance analysis, and lifestyle behaviors were assessed via questionnaire at baseline and post-intervention. Counseling focused on healthy weight reduction, nutrition, dining-out choices, hunger management, coping strategies to enhance choice resilience, exercise, and post-exercise nutrition, reinforced with SMART goals. A digital dietary monitoring system (LINE platform) facilitated iterative feedback. Paired changes were analyzed using Wilcoxon signed-rank tests, and lifestyle outcomes were summarized as responder rates.
Results: All participants completed the program. BMI z-scores decreased significantly (mean −0.04; p = 0.008). Body composition showed significant reductions in body fat percentage (−5.5%; p = 0.023) and increases in skeletal muscle mass (+2.3 kg; p = 0.043). Changes in visceral fat (−1.13; p = 0.071), height (+1.8 cm; p = 0.068), and body weight (+0.03 kg; p = 0.799) were not significant. Lifestyle improvements included increased vegetable intake, weekly exercise frequency, and reduced intake of fried foods, desserts, and sugar-sweetened beverages.
Conclusions: This pilot study demonstrates that a collaborative intervention between pediatricians and school nurses is feasible in rural schools. Participants showed improvements in BMI z-scores, body composition, and behavioral choice resilience, indicating that multidisciplinary, school-based interventions can promote metabolic fitness beyond simple weight loss in resource-limited settings.

25 **Development of a Virtual Reality–Based Training System for Pediatric Colonoscopy**

兒童大腸鏡虛擬實境訓練系統之開發與操作表現

Fang-Min Liao[1,2], Tung-Hua Yang[3], An-Chyi Chen[1], Shu-Fen Wu[1], Kai-Sheng Hsieh[4]
Department of Pediatric Gastroenterology, Hepatology & Nutrition, China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[1]; Department of Public Health, China Medical University, Taichung, Taiwan[2]; China University of Technology, Taipei, Taiwan[3]; Department of Pediatric Cardiology, China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[4]
廖舫敏[1,2]、楊東華[3]、陳安琪[1]、吳淑芬[1]、謝凱生[4]
中國醫藥大學兒童醫院兒童肝膽腸胃科[1]、兒童心臟科[4]; 中國醫藥大學公共衛生學系[2]; 中國科技大學[3]

Background: Pediatric colonoscopy presents unique technical challenges due to smaller body size, distinct anatomy, and fragile colonic walls. In addition, declining birth rates in many developed countries have resulted in a reduced pediatric patient volume, further limiting hands-on training opportunities for pediatric gastroenterology trainees. These factors contribute to a slower learning curve and highlight the need for alternative training strategies. Virtual reality (VR) simulation offers a safe and immersive educational environment; however, most existing simulators are designed for adult procedures and lack pediatric-specific adaptations.
Methods: We developed a VR-based training system specifically designed for pediatric colonoscopy. Pediatric colonoscopy images obtained during clinically indicated procedures were used to reconstruct three-dimensional virtual colonic anatomy. The system simulates key procedural steps of pediatric colonoscopy, with training modules ranging from basic scope navigation to therapeutic procedures such as polypectomy. The system was tested by participants with different levels of colonoscopy experience, including senior pediatric gastroenterologists, early-career physicians, and trainees. User feedback was collected using structured questionnaires to evaluate system usability and training relevance.
Results: A pediatric-specific VR colonoscopy training system was successfully developed and implemented. The platform enabled repeated, risk-free practice and realistic simulation of pediatric anatomical and procedural characteristics. Questionnaire responses indicated good usability and perceived educational value across participants with varying levels of colonoscopy experience.
Conclusions: This study demonstrates the feasibility of a VR–based training system tailored for pediatric colonoscopy. The platform provides a safe, simulated environment for pediatric colonoscopy training and may support future development of structured educational programs.

26 **Pharmacogenomic Determinants of 6-mercaptopurine Dosing in Taiwanese Pediatric Acute Lymphoblastic Leukemia**

台灣兒童急性淋巴性白血病 6-mercaptopurine 劑量與藥物基因體學研究

Hsi-Che Liu[1], Shih-Hsiang Chen[2], Ting-Chi Yeh[1], Tang-Her Jaing[2], Jen-Yi Hou[1], Tsung-Yen Chang[2], Ting-Huan Huang[3], Yi-Lun Wang[2], Chao-Neng Liu[1], Meng-Jeh Chung[1]
Division of Pediatric Hematology/Oncology, MacKay Children's Hospital[1]; Division of Hematology/Oncology, Department of Pediatrics, Chang Gung Memorial Hospital, Linkou[2]; Division of Pediatric Hematology/Oncology, Hsinchu Municipal MacKay Children's Hospital[3]

劉希哲[1]、陳世翔[2]、葉庭吉[1]、江東和[2]、侯人尹[1]、張從彥[2]、黃鼎煥[3]、王奕倫[2]、劉兆能[1]、鍾孟哲[1]
馬偕兒童醫院兒童血液腫瘤科[1]; 林口長庚醫院兒童血液腫瘤科[2]; 新竹市立馬偕兒童醫院兒童血液腫瘤科[3]

Background: 6-mercaptopurine (6-MP) is a key component of maintenance therapy for pediatric ALL. Its cytotoxic effect depends on intracellular conversion to 6-thioguanine nucleotides (TGN), which are incorporated into DNA (DNA-TGN) and induce cell death through post-replicative DNA mismatch repair. Genetic variants in TPMT and NUDT15 are recognized pharmacogenomic determinants of 6-MP tolerance and optimal dosing. This study evaluated individualized 6-MP dosing based on pharmacogenomic profiles and DNA-TGN levels in Taiwanese pediatric ALL patients.
Methods: WBCs were isolated from PB, and genomic DNA was extracted using the QIAamp DNA Mini Kit (Qiagen). TPMT and NUDT15 genotypes were determined by Sanger sequencing. DNA-incorporated TGN were enzymatically released at 37 °C and quantified by liquid chromatography–mass spectrometry.
Results: A total of 349 samples from 59 patients, including 43 from MacKay Children's Hospital and 16 from Chang Gung Memorial Hospital, were analyzed. For TPMT, 96.6% of patients were normal metabolizers (NM) and 3.4% were intermediate metabolizers (IM); no poor metabolizers (PM) were identified. The predominant TPMT diplotype was *1/*1 (79.7%), with *1/*1S accounting 16.9%, and only 3.4% carrying variant alleles (*1/*3C or *1/C317T). In contrast, NUDT15 showed greater variability with 67.8% NM, 20.3% IM, 3.4% PM, and 8.5% indeterminate. The most common NUDT15 diplotype was *1/*1 (67.8%); other frequent diplotypes were *1/*2 (15.3%), *1/*6 (8.5%), *1/*3 (5.1%), *2/*3 (1.7%), and *3/*3 (1.7%). Tolerated 6-MP doses differed significantly by NUDT15 phenotype, with median doses of 35.5, 15.0 and 5.6 mg/m² in NM, IM, and PM patients, respectively. The DNA-TGN/6-MP ratio increased significantly across phenotypes, averaging 2.7, 4.8, and 12.2 fmol/μg DNA per mg 6-MP in NM, IM, and PM groups, respectively. The impact of TPMT genotype remained inconclusive due to limited case numbers.
Conclusions: Serial measurement of DNA-TGN using minimal DNA input is feasible in Taiwanese pediatric ALL patients. NUDT15 pharmacogenetic status is a major determinant of tolerated 6-MP dosing, supporting its integration into individualized treatment strategies.

27 **The Introduction of Acetazolamide Lowers the Risk of Delayed Methotrexate Clearance in Pediatric Leukemia Patients Treated with High-Dose Methotrexate Therapy**
接受高劑量 Methotrexate 治療的兒童白血病患者中，使用 Acetazolamide 可降低 Methotrexate 延遲排泄的風險

Yi-Lun Wang[1], Tsung-Yen Chang[1], Shih-Hsiang Chen[1], Yi-Wen Hsiao[2], Yu-Chuan Wen[2], Tang-Her Jaing[1]
Divisions of Hematology/Oncology, Department of Pediatrics, Chang Gung Children's Hospital, Chang Gung University, Taoyuan, Taiwan[1];Department of Nursing, Chang Gung Memorial Hospital, Taoyuan, Taiwan[2]
王奕倫[1]、張從彥[1]、陳世翔[1]、蕭翌雯[2]、溫玉娟[2]、江東和[1]
林口長庚紀念醫院; 兒童血液腫瘤科[1]、護理部[2]

Background: Managing treatment-related adverse events remains a critical issue in oncology. Methotrexate (MTX) is a pivotal therapeutic agent in the treatment of various cancers, including pediatric acute lymphoblastic leukemia (ALL). However, little is known about the impact of add-on therapy with acetazolamide (ACZ) in facilitating MTX clearance.
Methods: We retrospectively included cases of newly diagnosed pediatric high-risk ALL between December 2022 and July 2025 at Chang Gung Memorial Hospital. Medical records during the high-dose MTX (HD-MTX) consolidation phase were reviewed, with a focus on instances where the first serum MTX level exceeded 1.0 μmol/L. Patients were categorized into ACZ-added and ACZ-free subgroups to evaluate the impact of ACZ on MTX clearance. Outcomes of interest included time to MTX normalization, incidence of delayed MTX clearance, 24-hour MTX decrement rate, and average daily urine output.
Results: A total of 29 patients were enrolled. Of these, 18 were allocated to the ACZ-free subgroup and 11 to the ACZ-added subgroup. Baseline characteristics, including age at enrollment, leukemic subtype, HD-MTX cycle at enrollment, and anthropometric parameters, were comparable between the subgroups. The ACZ-added subgroup demonstrated a significantly higher 24-hour MTX decrement rate, lower incidence of delayed MTX clearance, and faster time to MTX normalization.
Conclusions: Our findings support the concept that adjunctive ACZ use may facilitate MTX clearance in the HD-MTX treatment setting. Despite similar urine output between the subgroups, we attribute the enhanced MTX clearance to urine alkalinization induced by ACZ. The addition of ACZ appears to be both effective and safe. Larger prospective studies are warranted to validate and expand upon these findings.

28 **Single-Center Experience with Blinatumomab for Pediatric Acute Lymphoblastic Leukemia**
使用 Blinatumomab 治療小兒急性淋巴性白血病之單一中心經驗

Hung-Hsuan Wang, Te-Kau Chang, Teng-Yang Yu, Shiann-Tarng Jou, Ching-Tien Peng, Hui-Lun Peng, Min-Yu Su
Department of Pediatric Hematology and Oncology, China Medical University Children's Hospital
王鉉玄、張德高、余登揚、周獻堂、彭慶添、彭慧倫、蘇旻昱
中國醫藥大學兒童醫院兒童血液腫瘤科

Background: Although pediatric B-cell acute lymphoblastic leukemia (B-ALL) generally has favorable survival outcomes, refractory or relapsed leukemia remains a therapeutic challenge. The recent introduction of bispecific T-cell engager (BiTE) molecule blinatumomab has improved outcomes in children with refractory/relapsed B-ALL. Blinatumomab may also serve as a bridge to definitive therapy, such as hematopoietic stem cell transplantation (HSCT). Because its mechanism targets CD19-positive B cells, treatment can be associated with B-cell aplasia and hypogammaglobulinemia. In Taiwan, blinatumomab plays an important role in the management of high-risk (HR) and very high-risk (VHR) pediatric B-ALL according to the Taiwan Pediatric Oncology Group (TPOG) guidelines. In this article, we share our single-center

experience with this newly introduced agent.
Methods: This retrospective study enrolled pediatric patients diagnosed with B-cell acute lymphoblastic leukemia (B-ALL) between 2021 and 2025 who received two cycles of blinatumomab at China Medical University Children's Hospital. Collected clinical data included B-ALL risk group, age at diagnosis, clinical course, genotypic findings, minimal residual disease (MRD) status, age at blinatumomab initiation, immunoglobulin levels, and lymphocyte subset profiles.
Results: A total of 12 patients received two cycles of blinatumomab between 2021 and 2025 at China Medical University Children's Hospital. The cohort included 8 boys and 4 girls, with ages ranging from 1 to 17 years. The mean age at initiation of blinatumomab was 7.4 years (range, 2–18 years). One-third of the patients had Philadelphia chromosome-positive ALL. All enrolled patients achieved MRD remission ($<$ 0.01%). All 12 patients developed hypogammaglobulinemia and B-cell aplasia after blinatumomab treatment. The mean time to B-cell aplasia recovery was 17.3 months (range, 1–33 months).
Conclusions: Blinatumomab is effective in achieving MRD remission in our pediatric B-ALL cohort, supporting its role as an important salvage and bridging therapy. However, prolonged B-cell aplasia and hypogammaglobulinemia highlight the need for careful immune monitoring and supportive management.

29 **Feasibility and Safety of Immune Checkpoint Inhibitors as Maintenance Therapy After Transplant in High-Risk Medulloblastoma: A Single-Institution Experience**
高風險性髓母細胞瘤移植後使用免疫檢查點抑制劑作為維持治療之可行性與安全性：單一機構經驗

Yi-Lun Wang[1], Chieh-Tsai Wu[2], Chen-Kan Tseng[3], Yi-Wen Hsiao[4], Tsung-Yen Chang[1], Shih-Hsiang Chen[1], Tang-Her Jaing[1]
Division of Hematology/Oncology, Department of Pediatrics [1]、Department of Neurosurgery [2]、Department of Radiation Oncology [3]、Department of Nursing [4]; Chang Gung Memorial Hospital, Linkou, Taoyuan
王奕倫 [1]、吳杰才 [2]、曾振淦 [3]、蕭翌雯 [4]、張從彥 [1]、陳世翔 [1]、江東和 [1]
林口長庚紀念醫院; 兒童血液腫瘤科 [1]、腦神經外科 [2]、放射腫瘤科 [3]、護理部 [4]

Background: Medulloblastoma (MB) is a heterogeneous tumor with prognosis shaped by histologic subtype, molecular subgroup, and resection extent. Despite standard treatment with surgery, CRI, and chemotherapy, relapses remain common in non-WNT/non-SHH and high-risk SHH tumors. Immunotherapeutic approaches, including ICIs, are increasingly explored as potential maintenance options in selected high-risk patients.
Methods: A retrospective review was conducted on ten pediatric MB patients, capturing demographics, histology, molecular subgroup, extent of resection, relapse status and timing, follow-up duration, relapse-free survival, overall survival, and survival status. Clinical notes, including prior ICI exposure and discontinuation, were also examined.
Results: Among 10 patients (median age 7.2 years), histologic subtypes included classic (n=8) and desmoplastic/nodular (n=2). Molecular subgroups consisted of SHH-activated tumors (n=6), including four TP53-mutant and two TP53-wildtype, and non-WNT/non-SHH tumors (n=4). Surgical resection included gross total resection (n=5), near-total resection (n=4), and subtotal resection (n=1). Four patients experienced relapses, with relapse-free survival ranging from 13 to 33 months. Two patients had residual tumors after standard multimodality therapy, one had a TP53-mutant SHH tumor, and one presented with spinal metastases at diagnosis; all 4 were selected to receive maintenance ICI therapy. Treatment-emergent immune-related adverse events (iRAEs) included pneumonitis in 2 patients and immune thrombocytopenia in 1 patient, all of which were managed with corticosteroids and temporary interruption of ICI. At the last follow-up, all 4 patients who received ICI remained alive, and none required ongoing oxygen supplementation or systemic steroid therapy for persistent pulmonary or iRAEs.
Conclusions: ICI therapy was given to selected high-risk MB patients and showed manageable toxicities, with all cases recovering from iRAEs. Although responses varied, the findings support cautious, individualized use and highlight the need for further evaluation.

30 **The Experience of Selumetinib in the Treatment of Neurofibromatosis Type 1-Associated Plexiform Neurofibroma and Low-Grade Glioma**
Selumetinib 治療神經纖維瘤第一型相關叢狀神經纖維瘤及低惡度膠質瘤之臨床經驗

Ming-Hsin Hou[1], Chih-Ying Lee[1], Hsin-Hung Chen[2], Hsiu-Ju Yen[1]
Department of pediatric hematology and oncology[1], Department of Neurosurgery[2], Taipei Veteran General Hospital, Taiwan
侯明欣 [1]、李致穎 [1]、陳信宏 [2]、顏秀如 [1]
臺北榮民總醫院小兒血液腫瘤科 [1]、神經外科 [2]

Background: Neurofibromatosis type 1 (NF1)-associated plexiform neurofibroma (PN) can cause pain, disfigurement, and organ compression. Although surgical resection is traditionally used for symptom relief, complete removal is often difficult due to infiltrative growth, risk of nerve injury, and blood loss. Selumetinib, a MEK inhibitor, has been approved for inoperable PN. We report our single-institution experience using Selumetinib in patients with NF1-associated PN and its off-label use in low-grade glioma (LGG).
Methods: This retrospective study included NF1 patients treated with Selumetinib between July 2022 and December 2025. Tumor burden was assessed by serial MRI every 6-12 months using three orthogonal diameters and spheroid volume estimation.
Results: Nine patients (6 children and 3 adults) with PN with median age 12.5 years were included. The median treatment duration was 2.3 years (range 0.5-3.5 years). Dose reduction due to adverse events occurred in 66% of patients, most commonly skin rash with infection. Under treatment, eight patients achieved stable disease, while one experienced disease progression. One patient showed less than 20% tumor volume reduction but had significant improvement in scoliosis. Four patients with stable disease discontinued Selumetinib due to termination of the compassionate use program or poor compliance. Two of these patients experienced disease progression after discontinuation and required Selumetinib re-challenge; one also underwent surgery for symptom control. One NF1 patient with optic pathway LGG treated with Selumetinib

for 1.5 years achieved partial radiological response, although visual function remained poor due to prior irreversible damage.
Conclusions: Selumetinib provides durable disease control and symptomatic benefit in patients with inoperable NF1-associated PN. Early recognition and management of adverse events are crucial to minimize dose reduction and improve treatment adherence. The risk of tumor regrowth after Selumetinib discontinuation warrants further investigation. Selumetinib may also be considered for NF1-associated LGG, although its impact on visual outcomes and optimal treatment timing requires further study.

31 **Clinical characteristics and outcome of intracranial metastases from solid tumors in children: a single-institution experience**
兒童固態腫瘤顱內轉移的臨床特徵與治療預後：單一機構之經驗

Hsin-Jou Huang[1], Shih-Hsiang Chen[1,2], Yi-Lung Wang[1,2], Chieh-Tsai Wu[3], Wei-Heng Kao[4], Chen-Kan Tseng[4], Tsung-Yen Chang[1,2], Tang-Her Jaing[1,2], Chao-Ping Yang[1,2], Iou-Jih Hung[1,2]
Department of Pediatrics[1], Division of Pediatric Hematology/Oncology[2], Division of Neurosurgery[3], Department of Radiation Oncology[4], Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taoyuan, Taiwan
黃心柔 [1]、陳世翔 [1,2]、王奕倫 [1,2]、吳杰才 [3]、高偉恆 [4]、曾振淦 [4]、張從彥 [1,2]、江東和 [1,2]、楊兆平 [1,2]、洪悠紀 [1,2]
林口長庚紀念醫院兒童內科部 [1]、林口長庚紀念醫院兒童血液腫瘤科 [2]、林口長庚紀念醫院腦神經外科 [3]、林口長庚紀念醫院放射腫瘤科 [4]

Background: Intracranial metastases account for a minor part of brain tumors. Limited information of this issue is available. We aim to analyze clinical characteristics and outcome of children who develop intracranial metastases from solid tumors in a single medical center.
Methods: All patients younger than 18 years old with extracranial nonhematopoietic solid tumors treated at Linkou Chang Gung Memorial Hospital between 2014 and 2023 were included. The medical records were retrospectively reviewed.
Results: Totally, 289 children with extracranial nonhematopoietic solid tumors were identified. Among them, 7 (2.4%) patients had intracranial metastases. All of them are male patients. The histological diagnosis of primary tumor included malignant germ cell tumors in 4, neuroblastoma in 1, osteosarcoma in 1, and Ewing sarcoma in 1. All intracranial metastases occurred at recurrence. The median interval between primary diagnosis and intracranial metastasis was 3 years (range, 0.9 – 3.7 years). All except one had symptoms of increased intracranial pressure. Four patients presented with single intracranial tumor. Three of them underwent gross total tumor resection, and all had intracranial recurrence-free at last follow-up. Three patients presented with multiple intracranial tumors, and none of them underwent surgical excision. Radiotherapy was applied to 4 of 7 patients. As of December 31, 2026, only 2 patients (28.6%) were alive at the median follow-up of 4.4 months (range, 0.5 – 10 months). Both patients had single metastatic tumor with gross total tumor resection. All the remaining 5 patients died because of progression of underlying cancer.
Conclusions: Intracranial metastases from solid tumors in children are rare. They tend to occur at recurrence. The long-term outcome of patients with intracranial metastases in our cohort is dismal. The presence of single metastatic tumor and the feasibility of gross total tumor resection may result in better outcome.

32 **Pencil-Beam Scanning Proton Therapy for Childhood Cancer and Brain Tumor: Feasibility and Local Control**
筆尖型射束質子放射治療用於兒童癌症與腦瘤：可行性與局部控制

Yen-Lin Liu[1,14,15,#] 、 Chia-Chun Kuo[2,14,19,#] 、 Yi-Shan Yang[3,14,16] 、 Shu-Mei Chen[3,14,16] 、 Kevin Li-Chun Hsieh[4,14,17]、Yi-Ying Lin[5,14]、Hsiu-Hao Chang[6]、Hsiu-Ju Yen[7]、Kang-Hsi Wu[8]、Fang-Liang Huang[9]、Shiann-Tarng Jou[6] 、 Meng-Yao Lu[6] 、 Wei-Hao Wang[10] 、 Ming-Yun Hsieh[11]、Min-Yu Su[12]、Chia-Jui Du[6]、Tung-Ho Wu[2,19,*]、Jeng-Fong Chiou[2,14,19,*]、Tai-Tong Wong[3,14,18] 、 James S. Miser[13,14]、Wan-Ling Ho[1,14,15,*]、Hsin-Lun Lee[2,14,19,*]
Departments of Pediatrics[1], Radiation Oncology[2], Pediatric Neurosurgery[3], Imaging Medicine[4], and Rehabilitation[5], Taipei Medical University Hospital, Taipei, Taiwan; National Taiwan University Children's Hospital, Taipei, Taiwan[6]; Taipei Veterans General Hospital, Taipei, Taiwan[7]; Chung Shan Medical University Hospital, Taichung, Taiwan[8]; Taichung Veterans General Hospital, Taichung, Taiwan[9]; Changhua Christian Children's Hospital, Changhua, Taiwan[10]; Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[11]; China Medical University Children's Hospital, Taichung, Taiwan[12]; Department of Pediatrics, City of Hope National Medical Center, Duarte， CA, USA[13]; Pediatric Brain Tumor Program, Taipei Cancer Center[14], the Departments of Pediatrics[15], Surgery[16], Radiology[17], School of Medicine, College of Medicine, Institute of Clinical Medicine[18], and Proton Centerd[19], Taipei Medical University, Taipei, Taiwan
劉彥麟 [1,14,15,#]、郭嘉駿 [2,14,19,#]、楊宜珊 [3,14,16]、陳淑美 [3,14,16]、謝立群 [4,14,17]、林宜穎 [5,14]、張修豪 [6]、顏秀如 [7]、巫康熙 [8]、黃芳亮 [9]、周獻堂 [6]、盧孟佑 [6]、王唯豪 [10]、謝明芸 [11]、蘇旻昱 [12]、杜佳叡 [6]、吳東和 [2,19,*]、邱仲峯 [2,19,*]、黃棣棟 [3,14,18]、J.S. Miser[13,14]、何宛玲 [1,14,15,*]、李欣倫 [2,14,19,*]

臺北醫學大學附設醫院小兒部 [1]、放射腫瘤科 [2]、兒童神經外科 [3]、影像醫學部 [4]、復健科 [5]；國立臺灣大學醫學院附設醫院兒童醫院小兒血液腫瘤科 [6]；臺北榮民總醫院兒童血液腫瘤科 [7]；中山醫學大學附設醫院兒童血液腫瘤科 [8]；臺中榮民總醫院兒童血液腫瘤科 [9]；彰化基督教兒童醫院兒童血液腫瘤科 [10]；高雄榮民總醫院兒童血液腫瘤科 [11]；中國醫藥大學兒童醫院兒童血液腫瘤科 [12]；美國加州希望之城醫學中心 [13]；臺北醫學大學臺北癌症中心兒童腦瘤照護團隊 [14]、醫學院醫學系小兒學科 [15]、外科學科 [16] 及放射線學科 [17]、臨床醫學研究所 [18]；臺北醫學大學質子中心 [19]；#同等貢獻作者；*通訊作者

Background: Pencil-Beam Scanning Proton Therapy (PBS-PT) allows highly conformal dose delivery with superior normal tissue sparing compared with conventional photon radiotherapy, particularly important in children due to the vulnerability of developing tissues.

Methods: At Taipei Medical University (TMU), a compact-gantry proton therapy facility with intensity-modulated PBS-PT technique (Proteus® ONE, IBA, Louvain-La-Neuve, Belgium) was conceived in 2012, constructed in 2018, installed in 2019, and approved in 2022. Treatment plans were completed in RayStation 2023B (RaySearch Laboratories, Stockholm, Sweden). All patients who received PBS-PT from 0–18 years of age were analyzed.
Results: From 2022/8 to 2025/12, PBS-PT was delivered to 30 pediatric patients (F:M=13:17) at a median age of 8.5 (range, 0.9–15.6) years, including 8 children (27%) younger than 3 years. The majority of patients (*n*=20, including 3 international patients) were referred from another hospital. Central nervous system (CNS) tumors constituted the majority (*n*=17). The most common diseases were neuroblastoma (*n*=6), medulloblastoma (*n*=5), and rhabdomyosarcoma (*n*=4). Eight patients (27%) had metastatic disease and 9 patients (30%) were treated after progression. Multidisciplinary team management was provided to 28 patients. PBS-PT was delivered to the CNS in 19 patients (63%; including 1 myeloid sarcoma and 1 neuroblastoma) at a median dose of 40 (21.6–60) GyE; the median dose to non-CNS fields was 45 (21.6–64.8) GyE. Craniospinal PBS-PT was delivered in 6 patients at a median dose of 23.4 (18–36) GyE. Additional therapy to PBS-PT included TomoTherapy (*n*=3; 10%) and chemotherapy (*n*=10; 33%); 12 patients (40%) required intravenous general anesthesia or moderate sedation. Creative art therapy was incorporated into the care of 10 patients. At a median follow-up of 18.2 months, there were 3 in-field progressions (2 CNS and 1 non-CNS). The 12- and 18-month local control rates were 96.2% and 85.5%, respectively. Patients with no metastases/progression at PBS-PT (*n*=15) had better local control (100% *vs*. 62.9%; *P*=0.056) and overall survival (100% *vs*. 64.7%; *P*=0.015) at 18 months.
Conclusions: PBS-PT is feasible and effective for local control for pediatric cancer, particularly CNS tumors. Further studies are warranted to evaluate long-term local control and late toxicity of PBS-PT.

33 **Maternal Heat Exposure Alters Neonatal Lung Inflammation, TRPV Channel Expression, and Lipid Metabolism in Mice**
母體熱暴露改變新生小鼠肺部發炎反應、TRPV 通道表現與脂質代謝

Sheng-Yuan Ho[1,2,3], Hsiu-Chu Chou[4], Chung-Ming Chen[5,6]
Department of Pediatrics, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan[1]; Department of Pediatrics, School of Medicine, College of Medicine, National Defense Medical University, Taipei, Taiwan[2]; Graduate Institute of Clinical Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan[3]; Department of Anatomy and Cell Biology, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan[4]; Department of Pediatrics, Taipei Medical University Hospital, Taipei, Taiwan[5]; Department of Pediatrics, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan[6]
何昇遠[1,2,3]、周琇珠[4]、陳中明[5,6]
國防醫學大學三軍總醫院小兒部[1]、醫學院醫學系小兒學科[2]; 臺北醫學大學臨床醫學研究所[3]、解剖暨細胞生理學科[4]、小兒學科[5]; 臺北醫學大學附設醫院小兒部[6]

Background: Maternal heat exposure is an emerging climate-related risk factor for adverse perinatal outcomes, yet the molecular pathways linking prenatal thermal stress to neonatal lung vulnerability remain unclear. We investigated whether late-gestational maternal heat exposure is associated with alterations in thermosensitive transient receptor potential vanilloid (TRPV) signaling, inflammatory responses, and metabolic profiles in the neonatal lung.
Methods: Pregnant C57BL/6 mice were exposed to daily heat stress (40 °C, 2 h/day) or thermoneutral conditions from gestational days 14 to 21. Offspring lungs were analyzed on postnatal days (P) 0 and 7 using Western blotting, immunohistochemistry, cytokine assays, and untargeted metabolomics.
Results: Maternal heat exposure significantly reduced offspring birth weight ($p < 0.001$) and was associated with increased pulmonary expression of TRPV1 at P0 and P7, and TRPV4 at P7. Immunohistochemistry localized enhanced TRPV1 and TRPV4 immunoreactivity predominantly to the bronchial epithelium. These receptor-level changes were accompanied by elevated pulmonary nuclear factor-κB protein levels and a coordinated pro-inflammatory cytokine profile, including increased interleukin-1, interleukin-6, and tumor necrosis factor-α at both time points. Untargeted metabolomic analysis demonstrated clear separation between control and heat-exposed lungs at birth, characterized by disrupted lipid homeostasis and enrichment of unsaturated fatty acid pathways, including arachidonic acid, linoleic acid, and α-linolenic acid metabolism. By P7, global metabolic differences were attenuated, with no pathways meeting the false discovery rate threshold; however, linoleic acid– and glycerophospholipid-related pathways showed nominal enrichment prior to correction.
Conclusions: Maternal heat exposure during late gestation is associated with early postnatal lung inflammation, altered TRPV1/4 expression, and transient remodeling of lipid metabolism in offspring. These findings provide mechanistic insight into how prenatal thermal stress may increase neonatal pulmonary vulnerability in a warming climate.

34 **Role of Foamy Macrophage–Derived Exosomal microRNAs in COPD-Related Lipid and Inflammatory Dysregulation**
泡沫狀巨噬細胞釋放之外泌體與 miRNA 在慢性阻塞性肺病中對脂質代謝與發炎反應之調控角色

Ming-Luen Tsai[1,2,3], Chih-Sung Lan[2,3], Xiao-Han Yang[2], Hao-Wen Cheng[2], Yin-Ting Chen[2], Hsiao-Yu Chiu[2], Hung-Chih Lin[2,4], Jiu-Yao Wang[5,6], Shih-Hsin Wu[1]
Graduate Institute of Biomedical Sciences, China Medical University Taichung, Taiwan[1]; Department of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[2]; Department of Pediatrics, Taichung Municipal Geriatric Rehabilitation General Hospital[3]; Department of Pediatrics, Asia University Hospital, Asia University, Taichung, Taiwan[4]; Center for Allergy, Immunology, and Microbiome (A.I .M.), China Medic al University Hospital, Taichung, Taiwan[5]; Department of Allergy, Immunology, and Rheumatology (AIR), China Medical University Children's Hospital, Taichung, Taiwan[6]
蔡明倫[1,2,3]、藍智嵩[2,3]、楊曉涵[2]、鄭皓文[2]、陳映廷[2]、邱曉郁[2]、林鴻志[2,4]、王志堯[5,6]、吳世欣[1]
中國醫藥大學生物醫學研究所[1]; 中國醫藥大學兒童醫院

新生兒科 [2]; 臺中市立老人復健綜合醫院兒科 [3]; 亞洲大學附屬醫院兒科部 [4]; 中國醫藥大學兒童醫院過敏免疫與微菌叢研究中心 [5]; 中國醫藥大學兒童醫院兒童過敏免疫風濕科 [6]

Background: Chronic obstructive pulmonary disease (COPD) is characterized by persistent airway inflammation, alveolar destruction, and tissue remodeling. Dysregulated macrophage lipid metabolism and phenotypic transformation play critical roles in disease progression. Foamy macrophages, defined by excessive intracellular lipid accumulation, exacerbate chronic inflammation through the release of pro-inflammatory cytokines and reactive oxygen species. In addition to soluble mediators, macrophages communicate via exosomes that carry regulatory microRNAs (miRNAs). However, the immunometabolic roles of exosomal miRNAs derived from foamy macrophages in COPD remain unclear.
Methods: Bone marrow–derived macrophages (BMDMs) were stimulated with oxidized low-density lipoprotein (oxLDL) and lipopolysaccharide (LPS) to induce a foamy phenotype. Exosomal miRNAs were profiled by next-generation sequencing, and functional effects of let-7c-3p were assessed by mimic transfection and analysis of lipid accumulation and inflammatory cytokine expression.
Results: A murine BMDM foam cell model was successfully established, as confirmed by increased lipid accumulation detected by Oil Red O staining and flow cytometry. Isolated extracellular vesicles exhibited a typical exosomal size distribution of 100–150 nm. Small RNA sequencing revealed distinct exosomal miRNA profiles in foamy macrophages, with significant downregulation of let-7 family members, which was further validated by quantitative PCR. Restoration of let-7 expression via mimic transfection significantly reduced IL-6 and TNF-α expression, indicating a regulatory role in macrophage lipid metabolism and inflammatory responses.
Conclusions: Exosomal miRNAs derived from foamy macrophages link lipid metabolic dysregulation to inflammatory signaling in COPD. Downregulation of exosomal let-7 contributes to lipid accumulation and inflammation, whereas restoration of let-7c-3p attenuates these effects. These findings highlight an exosome-mediated immunometabolic mechanism in macrophages and identify exosomal let-7c-3p as a potential biomarker and therapeutic target for COPD.

35 **Early-Life Antibiotic Exposure Impairs the Resolution of Systemic Inflammation: A Juvenile Rat Model**
生命早期抗生素暴露損害了全身性發炎的復原機制：一項幼鼠模式研究

Chia-Sui Chou[1,2], Mei-Jy Jeng[1,2]
Neonatal Medical Care Center, Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan[1]; Institute of Emergency and Critical Care Medicine, School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan[2]
周佳穗 [1,2]、鄭玫枝 [1,2]
臺北榮民總醫院兒童醫學部新生兒醫療中心 [1]; 國立陽明交通大學急重症醫學研究所 [2]

Background: Gut microbiota is critical for immune maturation. While antibiotics are essential for sepsis, early-life exposure disrupts this fragile ecosystem. Current research focuses on infection susceptibility, yet whether antibiotic-induced dysbiosis affects the capacity to resolve inflammation remains unclear. We investigated the impact of antibiotic exposure on microbiota and immune recovery kinetics in a juvenile rat model.
Methods: Twenty-four Sprague-Dawley rats (P22) were randomized into four groups: Control (water), Antibiotic (Augmentin, 1 ml/kg/day), Control-Infection, and Antibiotic-Infection. Treatments were given daily for 7 days (P22-P28). On P28, infection groups received intraperitoneal Lipopolysaccharide (LPS, 2 mg/kg). All animals were sacrificed 40 hours post-challenge (P30) to assess the resolution phase via 16S rRNA sequencing and serum ELISA.
Results: Beta diversity analysis (PCoA/Adonis) confirmed antibiotics as the dominant driver of community variation ($R^2 = 0.55$, $p < 0.01$). LEfSe analysis revealed an overgrowth of Enterobacteriaceae and depletion of beneficial commensals. Functionally, the microbiome shifted from homeostasis to stress-response pathways. Upon LPS challenge, antibiotic-treated rats showed a sharp loss of microbial diversity. Crucially, immune analysis revealed impaired resolution. While serum IL-1beta in Control-Infection rats returned to baseline by 40 hours, the Antibiotic-Infection group exhibited a trend toward sustained elevation. This indicates that while healthy rats effectively resolved acute inflammation, antibiotic-treated rats suffered from prolonged immune activation.
Conclusions: Early-life antibiotics induce dysbiosis associated with altered immune kinetics. The observed trend of prolonged cytokine elevation suggests that antibiotic-treated infants face challenges in resolving inflammation. These findings highlight the need for restorative strategies to support immune recovery.

36 **Respiratory and Pulmonary Vascular Outcomes in Small-for-Gestational-Age Infants Born at ≤29 Weeks' Gestation: A Nationwide Cohort Study in Taiwan**
出生胎齡 ≤29 週之小於胎齡早產兒的呼吸與肺循環表現：台灣全國性世代研究

Ming-Hui Chiang, Hsiang-Yu Lin
China Medical University Children's Hospital
江名蕙、林湘瑜
中國醫藥大學兒童醫院

Background: Small-for-gestational-age (SGA) status is associated with increased morbidity in very preterm infants, but device-based respiratory support patterns and pulmonary vascular burden remain incompletely characterized across gestational ages. We evaluated these outcomes in Taiwanese infants born at ≤29 weeks' gestation.
Methods: Using the nationwide Taiwan Neonatal Network (2018–2021), we compared SGA infants (birth weight < 10th percentile for gestational age and sex) with non-SGA infants. Multivariable logistic regression adjusted for key perinatal covariates examined inhaled nitric oxide (iNO) use, device-based respiratory support at 36 weeks' PMA among infants alive and hospitalised at 36 weeks, prolonged hospitalisation, and in-hospital mortality (excluding deaths within 12 hours). Prespecified gestational age–stratified analyses were performed.
Results: Among 2,835 infants, 265 (9.3%) were SGA. SGA infants had higher odds of iNO use (30.7% vs 14.3%; aOR 3.39, 95% CI 2.40–4.79) and in-hospital mortality

(aOR 4.59, 95% CI 3.16–6.67). Among infants alive and hospitalised at 36 weeks' PMA (n=2,290), SGA status was associated with greater device-based respiratory support, including conventional mechanical ventilation (aOR 3.00, 95% CI 1.88–4.79), high-frequency ventilation (aOR 2.99, 95% CI 1.38–6.45), non-invasive positive-pressure ventilation (aOR 2.96, 95% CI 1.88–4.66), and nasal CPAP (aOR 1.73, 95% CI 1.25–2.38). In stratified analyses, SGA-related differences in adverse respiratory outcomes were more evident among infants born at 26–29 weeks than among those born at lower gestational ages.
Conclusions: In Taiwanese infants born at ≤29 weeks' gestation, SGA status identifies a high-risk phenotype with increased pulmonary vascular burden, sustained device-based respiratory support, and prolonged hospitalization. These associations are particularly evident in infants born at 26–29 weeks' gestation, suggesting a need for tailored surveillance in this subgroup.

37 **The Impact of Severity of Small-for-Gestational-Age (SGA) on Short-term and Long-term Morbidity in Full-Term Neonates: A National Population-Based Cohort Study**
足月小於胎齡新生兒嚴重程度與短期及長期併發症之關聯：一項全國性世代研究

Yi-Shiuan Lin[1], Hsiang-Yu Lin[1], Hsiao-Yu Chiu[1], Ming-Luen Tsai[1], Hung-Chih Lin[1,2]
Division of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[1]; Department of Pediatrics, Asia University Hospital, Asia University, Taichung, Taiwan[2]
林怡璇[1]、林湘瑜[1]、邱曉郁[1]、蔡明倫[1]、林鴻志[1,2]
中國醫藥大學兒童醫院新生兒科[1]; 亞洲大學附屬醫院兒科部[2]

Background: Small-for-gestational-age (SGA, birth weight ＜10th percentile) is associated with adverse neonatal and long-term outcomes. Severe SGA (SSGA, birth weight ＜3rd percentile) is often assumed to confer substantially higher morbidity than SGA. However, robust national-level evidence comparing outcomes between SSGA and SGA in full-term neonates (FTNs) remains limited.
Methods: This retrospective population-based cohort study used Taiwan's National Health Insurance Research Database, including all FTNs born between 2004 and 2017. A contemporary FTN birth-weight nomogram was constructed to classify infants as appropriate-for-gestational-age (AGA), SGA, or SSGA. Short-term outcomes included major neonatal morbidities and NICU utilization. Long-term outcomes up to 7 years encompassed hospitalization, mortality, neurodevelopmental disorders, growth impairment, and selected chronic diseases. Logistic regression and Cox proportional hazards models were applied.
Results: Among 3,293,926 FTNs, 1,626,034 were AGA, 182,212 SGA, and 55,172 SSGA. Both SGA and SSGA groups had significantly higher risks of nearly all short-term morbidities compared with AGA (all $p < 0.001$). Direct comparison between SSGA and SGA showed minimal differences, except for higher risks of antibiotic use and atopic dermatitis in the SSGA group. By age 7, both SGA groups demonstrated similarly elevated risks of hospitalization, mortality, neurodevelopmental disorders, growth impairment, and allergic rhinitis compared with AGA (all $p < 0.001$).
Conclusions: In this nationwide cohort, both SGA and SSGA were associated with substantial short- and long-term morbidity compared with AGA. Importantly, long-term neurodevelopmental and chronic disease risks were comparably elevated in SGA and SSGA infants, suggesting limited additional prognostic value in rigidly separating SSGA from SGA for long-term risk stratification in full-term neonates.

38 **Impact of Maternal Air Pollution Exposure During Pregnancy on Birth Status and In-Hospital Outcomes in Very Preterm Infants**
母體孕期空氣污染暴露對極度早產兒出生表現與出院前預後之影響研究

Yun-Chi Huang[1], Yin-Ting Chen[1], Shang-Po Shen[1], Ta-Chien Chan[2], Hung-Ling Huang[3]
Department of Neonatology, China Medical University Children's Hospital[1]; Research Center for Humanities and Social Sciences, Academia Sinica[2]; Department of Internal Medicine, Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital[3]
黃韵淇[1]、陳映廷[1]、沈上博[1]、詹大千[2]、黃虹綾[3]
中國醫藥大學兒童醫院新生兒科[1]; 中央研究院人文社會科學研究中心[2]; 高雄醫學大學附設中和紀念醫院胸腔內科[3]

Background: Prenatal exposure to air pollution has been linked to adverse birth outcomes, but its relationship with neonatal morbidities, especially among very preterm infants, remains unclear. This study investigates the association between prenatal exposure to multiple air pollutants and short-term neonatal complications in a nationwide Taiwanese cohort.
Methods: We analyzed data from 9,339 preterm infants born between 2016 and 2023 in 22 counties in Taiwan. Maternal residential addresses were linked to township-level annual average concentrations of $PM_{2.5}$, PM_{10}, CO, NO_2, SO_2, and O_3. Exposure metrics were calculated using birth year and the prior year averages. After excluding late admissions and early discharges, 9,259 infants were analyzed for birth complications and 8,935 for in-hospital complications. Outcomes were assessed using weighted quantile sum (WQS) regression and quantile-based g-computation (qgcomp), adjusted for maternal and neonatal covariates.
Results: Higher combined exposure was associated with lower 1-minute Apgar scores and increased risks of hypoglycemia, hypothermia, respiratory distress syndrome requiring surfactant, and resuscitation. In-hospital outcomes including PVL, IVH, NEC, and PDA were also positively associated with exposure, while CLD and ROP were negatively associated. NO_2, O_3, and $PM_{2.5}$ were key contributing pollutants. Results were consistent across sensitivity analyses and statistical methods.
Conclusions: This study provides evidence that prenatal exposure to air pollution is linked to both immediate and in-hospital neonatal complications in very preterm infants. Efforts to reduce maternal exposure during pregnancy may improve outcomes in this vulnerable population.

39 **Impact of Growth Chart Selection on the Prevalence and Discriminative Performance of Extrauterine Growth Restriction in VLBW Infants: A Nationwide Cohort Study in Taiwan (2011-2021)**

生長曲線圖選擇對台灣極低出生體重兒子宮外生長遲緩盛行率與辨別效能之影響：2011-2021 年全國性世代研究

Yun-Han Chen[1], Yen-Chen Lin[1], Hung-Yang Chang[1,2], Chia-Huei Chen[1,2], Wai-Tim Jim[1,2], Kai-Ti Tseng[1], Chia-Ying Lin[1,2], Jui-Hsing Chang[1,2], Chun-Chih Peng[1,2], Chyong-Hsin Hsu[1,2]
Division of Neonatology, Department of Pediatrics, MacKay Children's Hospital[1];Department of Medicine, MacKay Medical University[2]
陳筠翰 [1]、林彥臻 [1]、張弘洋 [1,2]、陳佳慧 [1,2]、詹偉添 [1,2]、曾愷悌 [1]、林佳瑩 [1,2]、張瑞幸 [1,2]、彭純芝 [1,2]、許瓊心 [1,2]
馬偕兒童醫院兒科部新生兒科 [1];馬偕醫學大學醫學系 [2]

Background: Extrauterine growth restriction (EUGR) prevalence and clinical implications vary based on the growth chart and definition applied in very-low-birth-weight (VLBW) infants.
Methods: We retrospectively studied VLBW infants (24–31+6 weeks' gestation) from the Taiwan Premature Infant Follow-up Network (2011–2021). EUGR at discharge was defined using weight, length and head circumference via cross-sectional (CS: ＜10th percentile), longitudinal (LG: z-score decrease ＞ 1 SD), and true EUGR (CS/LG excluding small of gestational age). We compared three charts: Fenton 2025 (F25), Intergrowth-21st (I21), and postnatal growth chart (PG). Prevalence and agreement were compared, with analyses stratified by gestational age (GA) groups (24-26+6, 27-29+6, and 30-31+6 weeks'). Multivariable logistic regression was used to identify independent predictors of EUGR, and the discriminative performance of each chart was evaluated using the area under the receiver operating characteristic curve (AUC).
Results: In 7457 infants (mean GA: 28.79 ± 1.93 weeks ; birth weight: 1113.3 ± 244.8 g), EUGR prevalence differed significantly across charts for all definitions and anthropometric measures (all $p < 0.01$). For weight-based CS EUGR, F25 and I21 identified 49.6 and 45.7% of infants, respectively, while PG identified only 16.5%; similar trends were observed for LG and True EUGR definitions. Agreement was highest between F25 and I21 and lowest between I21 and PG chart. Chart discordance increased with GA. Notably, the PG chart yielded the highest discriminative accuracy (AUC: 0.81–0.90) compared to F25 (0.81–0.82) and I21 (0.77–0.82). Common predictors for EUGR included GA, birth weight, necrotizing enterocolitis, and duration of oxygen use.
Conclusions: EUGR prevalence and agreement vary by chart and definition, with discordance rising at later GA. The superior discriminative performance of the PG growth chart suggests it aligns more closely with clinical predictors of morbidity than international references. Our results advocate for the use of growth charts with high discriminative value to ensure that EUGR definitions remain clinically meaningful for the management of preterm infants.

40 **Head-Neutral Positioning Practices in Asian NICUs: A Multinational Survey of 290 Units**

亞洲新生兒加護病房頭部中立擺位實務：290 單位多國調查

Hao-Wei Chung[1,2,3], Shu-Ting Yang[1], Hsiang-Yu Lin[4], Ming-Chou Chiang[5,6], Chien-Yi Wu[7], Hsiu-Lin Chen[1,8,9], AsianNeo[10]
Division of Neonatology, Department of Pediatrics, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan[1]; Division of Pediatrics, School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan[2]; Department of Biological Science and Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan[3]; Division of Neonatology, China Medical University Children's Hospital, Taichung 40402, Taiwan[4]; Division of Neonatology, Department of Pediatrics, Chang Gung Memorial Hospital[5]; School of Medicine, Chang Gung University[6]; Department of Pediatrics, E-DA Hospital, Kaohsiung, Taiwan[7]; Department of Respiratory Therapy, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan[8]; School of Medicine, College of Medicine, National Sun Yat-sen University, Kaohsiung, Taiwan[9]; Asian Neonatal Network Collaboration, AsianNeo[10]
鐘浩瑋 [1,2,3]、楊書婷 [1]、林湘瑜 [4]、江明洲 [5,6]、吳建儀 [7]、陳秀玲 [1,8,9]、亞洲新生兒網絡合作 [10]
高雄醫學大學附設醫院 小兒部 新生兒科 [1]; 高雄醫學大學 醫學院 醫學系 小兒學科 [2]; 國立陽明交通大學 工程生物科學學院 生物科技學系 新竹 [3]; 中國醫藥大學兒童醫院 新生兒科 [4]; 林口長庚紀念醫院 兒童內科部 新生兒科 [5]; 長庚大學 醫學院 醫學系 [6]; 義大醫院 兒童醫學部 [7]; 高雄醫學大學 醫學院 呼吸治療學系 [8]; 國立中山大學 醫學院 後醫學系 [9]; 亞洲新生兒網絡合作 [10]

Background: Head-neutral positioning (HNP) is recommended by neonatal guidelines to optimize cerebral venous drainage in preterm infants. However, the 2020 Cochrane review found insufficient evidence from only three small trials. As a zero-cost intervention, HNP adoption may reflect organizational factors rather than resource constraints. No multinational data exist for Asian NICUs.
Methods: To describe HNP practice variation across Asian countries and compare characteristics between high and low implementation units. Cross-sectional survey of 290 NICUs from 8 Asian countries (Japan n=116, Thailand n=54, Indonesia n=36, Malaysia n=32, Taiwan n=22, Philippines n=16, Korea n=12, Singapore n=2). Data collected included: structural factors (NICU type, university affiliation, fellowship program, bed number, delivery volume), perinatal practices (antenatal corticosteroids, prenatal MgSO4, delayed cord clamping, cord milking), and NICU practices (PDA management, fluid/humidity management, EPO use, SpO2 targets). Units with ≥50% HNP implementation were classified as "High HNP." 27 variables were compared with Chi-square tests.

Results: Overall, 187 units (64.5%) were High HNP, ranging from 53.4% (Japan) to 78.1% (Malaysia). Japan showed the lowest adoption despite its advanced infrastructure. Seven variables differed significantly ($p < 0.05$): High HNP units had higher prenatal MgSO4 use, less indomethacin prophylaxis, less EPO for ≤26wk, preference for ibuprofen, higher humidity, later echo timing, and larger delivery volume. Structural factors showed no associations.
Conclusions: Among 290 Asian NICUs, 64.5% implemented HNP ≥50% with substantial country-level variation (53.4%-78.1%). High HNP units differed in clinical practices (7/27 variables) but not in structural factors, suggesting that organizational culture drives adoption of zero-cost interventions. Significantly, HNP was associated with practices independently linked to neonatal outcomes (MgSO4, PDA management). Future outcome studies must account for these co-varying practices as potential confounders when evaluating HNP effectiveness. These findings inform both quality improvement initiatives and research design.

41 **Association Between Cord Blood Vitamin D Levels and Neonatal Jaundice in Healthy Term Infants in Taiwan**
探討台灣足月兒臍帶血維生素 D 濃度與新生兒黃疸之相關性

Ming-Luen Tsai[1,2,3], Chih-Sung Lan[2,3], Xiao-Han Yang[2], Hao-Wen Cheng[2], Yin-Ting Chen[2], Hsiao-Yu Chiu[2], Hung-Chih Lin[2,4], Jiu-Yao Wang[5,6], Shih-Hsin Wu[1]
Graduate Institute of Biomedical Sciences, China Medical University Taichung, Taiwan[1];Department of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[2];Department of Pediatrics, Taichung Municipal Geriatric Rehabilitation General Hospital[3];Department of Pediatrics, Asia University Hospital, Asia University, Taichung, Taiwan[4];Center for Allergy, Immunology, and Microbiome (A.I.M.), China Medic al University Hospital, Taichung, Taiwan[5];Department of Allergy, Immunology, and Rheumatology (AIR), China Medical University Children's Hospital, Taichung, Taiwan[6]
蔡明倫 [1,2,3]、藍智嵩 [2,3]、楊曉涵 [2]、鄭皓文 [2]、陳映廷 [2]、邱曉郁 [2]、林鴻志 [2,4]、王志堯 [5,6]、吳世欣 [1]
中國醫藥大學生物醫學研究所 [1];中國醫藥大學兒童醫院新生兒科 [2];臺中市立老人復健綜合醫院兒科 [3];亞洲大學附屬醫院兒科部 [4];中國醫藥大學兒童醫院過敏免疫與微菌叢研究中心 [5];中國醫藥大學兒童醫院兒童過敏免疫風濕科 [6]

Background: Neonatal jaundice is common and often leads to parental concern and the initiation of phototherapy. Vitamin D deficiency is prevalent among pregnant women and newborns in Taiwan, and prior studies have reported inconsistent associations between vitamin D status and hyperbilirubinemia. We evaluated cord blood 25(OH)D status in Taiwanese term infants and its relationship with bilirubin burden and phototherapy use.
Methods: In this prospective cohort study, we enrolled 415 healthy term infants. Cord blood samples were collected immediately after birth to measure 25-hydroxyvitamin D (25[OH]D) levels. Vitamin D status was classified into three groups: deficiency (≤ 20 ng/mL), insufficiency (between 20 and 30 ng/mL), and sufficiency (≥ 30 ng/mL). Clinical data, including bilirubin levels at 72 hours of life, peak bilirubin levels, and the requirement for phototherapy, were recorded. Statistical analyses, including ANOVA and Chi-square tests, were performed to compare clinical outcomes among the groups.
Results: The mean cord blood 25(OH)D level was 15.56 ± 6.21 ng/mL, indicating a widespread prevalence of hypovitaminosis D. Specifically, 80.2% (n=333) of the newborns had deficiency, 17.3% (n=72) had insufficiency, and only 2.4% (n=10) had sufficient levels. Despite these low levels, we found no significant differences in clinical outcomes across the three groups. The mean bilirubin levels at 72 hours were similar (Deficiency: 10.21 mg/dL vs. Insufficiency: 10.04 mg/dL vs. Sufficiency: 9.04 mg/dL, $p = 0.324$). Peak bilirubin levels also showed no significant difference ($p = 0.243$). Furthermore, the phototherapy rates were comparable among the groups (16.8% vs. 15.3% vs. 10.0%, $p = 0.816$). Pearson correlation analysis confirmed no significant linear relationship between Vitamin D and bilirubin levels.
Conclusions: Despite a high prevalence of Vitamin D deficiency among Taiwanese healthy term newborns, our study found no significant correlation between cord blood Vitamin D levels and the severity of neonatal jaundice or the need for phototherapy. Routine screening of Vitamin D for predicting jaundice is likely not necessary based on our findings.

42 **Correlation between Placental Pathology and Early Neonatal Outcomes in Preterm Infants**
早產兒胎盤病理型態與早期新生兒預後之相關性研究

Kai-Ching Huang, Pei-Chen Tsao, Chia-Sui Chou, Ying-Chi Su
Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan
黃楷菁、曹珮真、周佳穗、蘇映齊
臺北榮民總醫院兒童醫學部

Background: Placental pathology is increasingly recognized as a major contributor to the heterogeneity of preterm birth and subsequent neonatal outcomes. This study aimed to evaluate the associations among maternal obstetric complications, placental pathology categories, and early neonatal outcomes in a tertiary care center.
Methods: Live-born infants delivered at < 33 weeks' gestation were retrospectively enrolled between May 2024 and August 2025. Maternal data included underlying medical conditions, obstetric complications, and placental histopathology. Neonatal characteristics and short-term outcomes—gestational age, birth weight, patent ductus arteriosus (PDA), respiratory distress syndrome (RDS), and oxygen need or ventilatory support at 28 days of life—were collected. Placental pathology findings were classified into four categories according to the Amsterdam Placental Workshop Group criteria: maternal stromal–vascular lesions, fetal stromal–vascular lesions, inflammatory–immune processes, and other placental processes.
Results: A total of 45 very-low-birth-weight infants with available placental pathology were included. The mean gestational age was 29 ± 2.4 weeks, and the mean birth weight was 1,287 g. Inflammatory–immune processes were the most common placental pathology (23/45, 51.0%), followed by maternal stromal–vascular lesions (9/45, 20.0%). Infants in the maternal vascular lesion group showed a trend toward more severe RDS (grade ≥3) and had the highest incidence of PDA (77.7%), followed by the

inflammatory group (69.8%). However, the inflammatory group had the highest rate of surgical PDA closure (26.0%), and higher rates of oxygen dependency (52.7% vs. 27.2%) and invasive ventilatory support (26.0% vs. 9.0%) at 28 days of life compared with those in the non-inflammatory groups.
Conclusions: Although placental inflammatory was not associated with increased RDS severity at birth, it showed a trend toward higher oxygen needs at 28 days of life and a higher likelihood of surgical PDA closure. These findings suggest that perinatal inflammatory or infectious processes may exert a substantial influence on preterm birth and early neonatal respiratory and cardiovascular outcomes.

43 **Associations of Early-Life Antibiotic Exposure, Parental Health and Socioeconomic Status, and Urbanization With Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder in Term Neonates: A Nationwide Population-Based Study**
早期抗生素暴露、父母健康與社會經濟狀況及都市化程度與足月新生兒自閉症及注意力缺陷/過動症的關聯：全國性研究

Hao-Yuan Lee[1], Hsiang-Yu Lin[2,3], Ming-Luen Tsai[2,3], Shang-Po Shen[3], Yin-Ting Chen[3], Hsiao-Yu Chiu[4], Hao-Wen Cheng[3], Hung-Chih Lin[3,4]
Department of Pediatrics, Wei Gong Memorial Hospital, Miaoli, Taiwan[1];Graduate Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan[2];Division of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[3];Department of Pediatrics, Asia University Hospital, Asia University, Taichung, Taiwan[4]
李浩遠[1]、林湘瑜[2,3]、蔡明倫[2,3]、沈上博[3]、陳映廷[3]、邱曉郁[4]、鄭皓文[3]、林鴻志[3,4]
為恭紀念醫院小兒科[1];中國醫藥大學臨床醫學研究所[2];中國醫藥大學兒童醫院新生兒科[3];亞洲大學附屬醫院兒科[4]

Background: Autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) may be influenced by early-life antibiotic exposure and other perinatal and familial risk factors. However, large-scale nationwide evidence remains limited.
Methods: We conducted a nationwide, population-based matched case–control study using Taiwan's National Health Insurance Database, including all pregnancies and term births from January 1, 2004, to December 31, 2015. Associations between antibiotic exposure, neonatal characteristics, parental factors, and physician-diagnosed ASD and ADHD in children aged 1–7 years (followed through 2022) were examined using Cox regression, comparing affected children with matched controls.
Results: ASD and ADHD were significantly associated with antibiotic exposure between 4–12 months of age, male sex, gestational age, birth weight, cesarean section, parental age, maternal diabetes, maternal allergic disorders, the highest family income quartile (Q4), and high urbanization (all $p < 0.001$). Additional risk factors included oral or intravenous antibiotic exposure at 4–12 months ($p \leq 0.003$), erythromycin exposure ≤3 months of age ($p \leq 0.033$), neonatal jaundice without treatment ($p \leq 0.038$), maternal gestational or essential hypertension ($p \leq 0.034$), paternal allergic disorders ($p \leq 0.017$), and parental depression ($p \leq 0.005$) or mental and behavioral disorders ($p \leq 0.003$). Specifically, ASD was associated with amoxicillin exposure ≤3 months of age ($p < 0.001$), erythromycin exposure, and ampicillin exposure at 4–12 months ($p = 0.033$). ADHD was associated with any antibiotic exposure ≤3 months of age ($p = 0.025$); augmentin exposure ($p < 0.001$); cefixime ($p = 0.021$); subacillin exposure at 4–12 months ($p = 0.002$); cephalexin exposure ≤3 months of age ($p = 0.046$); ampicillin exposure ($p = 0.010$); and parental ADHD ($p < 0.001$), parental neurodevelopmental disorders ($p = 0.002$), or anxiety ($p = 0.021$).
Conclusions: Early-life antibiotic exposure, delivery mode, parental health history, socioeconomic status, and degree of urbanization are significantly associated with ASD and ADHD. These findings highlight important opportunities for early-life risk assessment and preventive strategies.

44 **Associations of Early-Life Antibiotic Exposure and Neonatal or Parental Risk Factors With Intellectual Disability and Neurodevelopmental Disorders in Term Neonates: A Nationwide Population-Based Study**
早期抗生素暴露與新生兒或父母相關危險因子與足月新生兒智能障礙及神經發展障礙之關聯：全國性人口基礎研究

Hao-Yuan Lee[1], Hsiang-Yu Lin[2,3], Ming-Luen Tsai[2,3], Shang-Po Shen[3], Yin-Ting Chen[3], Hsiao-Yu Chiu[4], Hao-Wen Cheng[3], Hung-Chih Lin[3,4]
Department of Pediatrics, Wei Gong Memorial Hospital, Miaoli, Taiwan[1];Graduate Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan[2];Division of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[3];Department of Pediatrics, Asia University Hospital, Asia University, Taichung, Taiwan[4]
李浩遠[1]、林湘瑜[2,3]、蔡明倫[2,3]、沈上博[3]、陳映廷[3]、邱曉郁[4]、鄭皓文[3]、林鴻志[3,4]
為恭紀念醫院小兒科[1];中國醫藥大學臨床醫學研究所[2];中國醫藥大學兒童醫院新生兒科[3];亞洲大學附屬醫院兒科[4]

Background: Intellectual disability and neurodevelopmental disorders may be influenced by early-life antibiotic exposure and other perinatal and familial risk factors. However, large-scale nationwide evidence remains limited.
Methods: We conducted a nationwide, population-based matched case–control study using Taiwan's National Health Insurance Database, including all pregnancies and term births from January 1, 2004, to December 31, 2015. Associations between antibiotic exposure, neonatal characteristics, parental factors, and physician-diagnosed intellectual disability and other neurodevelopmental disorders in children aged 1–7 years (followed through 2022) were examined using Cox regression, comparing affected children with matched controls.
Results: Intellectual disability and neurodevelopmental disorders were significantly associated with intravenous antibiotic exposure before 3 months of age and between 4–12 months, any antibiotic exposure during infancy (≤12 months), ampicillin–β-lactamase inhibitor (sulbactam) exposure at 4–12 months, male sex, gestational age, birth weight, paternal age, maternal diabetes mellitus requiring insulin treatment, parental mental and behavioral disorders, and the lowest family income quartile (Q1) (all $p < 0.001$). Additional risk factors included amoxicillin–β-lactamase

inhibitor exposure, maternal gestational hypertension, maternal essential hypertension, clarithromycin exposure, ampicillin or cefazolin exposure, and paternal allergic disorders (all $p \leq 0.035$). Intellectual disability was additionally associated with cesarean delivery, early oral antibiotic exposure (≤3 months), ceftriaxone or amoxicillin exposure, and lower 5-minute Apgar scores (all $p \leq 0.014$). Neurodevelopmental disorders were associated with azithromycin, cefotaxime, or gentamicin exposure, high urbanization, and neonatal jaundice without treatment (all $p \leq 0.034$).

Conclusions: Early-life antibiotic exposure, delivery mode, parental health history, socioeconomic status, and degree of urbanization are significantly associated with intellectual disability and other neurodevelopmental disorders. These findings highlight important opportunities for early-life risk assessment and preventive strategies.

45 **Comparison Between Airway Physiology and Symptom Burden in Pediatric Long COVID: A FeNO and Impulse Oscillometry Study**

以呼出一氧化氮與脈衝震盪法評估比較兒童長新冠之氣道生理與症狀負擔現象

Tzu-Yuan Kang[1], Xiao-Ling Liu[2], Chien-Heng Lin[3,4], Wen-Jue Soong[3], Jiu-Yao Wang[2,5]

Department of Chinese Medicine, China Medical University Hospital, Taichung, Taiwan[1]; Center for Allergy, Immunology, and Microbiome (A.I.M.), China Medical University Hospital, China Medical University, Taichung, Taiwan[2]; Department of Pediatric Pulmonology and Critical Care Medicine, China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[3]; Department of Biomedical Imaging and Radiological Science, College of Health Care, China Medical University, Taichung, Taiwan[4]; Department of Allergy, Immunology, and Rheumatology (AIR), China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[5]

康紫媛[1]、劉小綾[2]、林建亨[3,4]、宋文舉[3]、王志堯[2,5]

中國醫藥大學中醫部[1]; 中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[2]; 中國醫藥大學兒童醫院胸腔暨重症科[3]; 中國醫藥大學生物醫學影像暨放射科學學系[4]; 中國醫藥大學兒童醫院過敏免疫風濕科[5]

Background: Pediatric Long COVID is characterized by heterogeneous symptoms, frequently involving the respiratory system. Fractional exhaled nitric oxide (FeNO) and impulse oscillometry (IOS) provide sensitive physiological indices for airway inflammation and small airway mechanics, but their relationship with symptom burden remains unclear.

Methods: We analyzed FeNO, IOS, and clinical symptoms in pediatric Long COVID patients. Physiological clustering was performed using Gaussian mixture modeling. Acute symptom duration and chronic symptoms were evaluated using nonparametric tests, correlation analyses, and age- and sex-adjusted logistic regression.

Results: Thirty pediatric patients were included. Two physiological clusters were identified based on FeNO, age, body height, R5–R20, X5, and AX. Although cluster labels were assigned according to median FeNO values, FeNO itself showed only a nonsignificant between-class trend ($p \approx 0.088$). In contrast, significant differences were observed in small-airway indices, including R5–R20, X5, Fres, and AX, indicating divergent airway mechanics. Anthropometric variables also differed between clusters. Acute symptom duration did not differ significantly between clusters; however, several IOS parameters demonstrated suggestive correlation trends with selected acute symptoms. FeNO showed only weak correlations with acute symptom duration. After adjustment for age and sex, no chronic symptoms were significantly associated with FeNO, IOS, or spirometry.

Conclusions: Physiological clustering using FeNO and IOS reveals dissociation between airway mechanics and symptom burden in pediatric Long COVID. Acute symptoms show suggestive physiological trends, whereas chronic symptoms appear largely independent of airway physiology, highlighting the need for integrative models beyond lower-airway mechanisms.

46 **Efficacy and Feasibility of Bronchoscopic Balloon Dilatation in Pediatric Airway via Soong's Ventilation**

兒童呼吸道支氣管鏡球囊擴張術於宋氏通氣法下之療效

Soo-Hong Tan[1,2], Wen-Jue Soong[2], Chien-Heng Lin[2], Mervyn Tan[3,4]

Department of Pediatric Pulmonology, Hospital Tunku Azizah (Women and Children Hospital) Kuala Lumpur, Malaysia[1]; Department of Pediatric Pulmonology and Critical Care Medicine, China Medical University Children's Hospital,Taichung, Taiwan[2]; Department of Pediatrics , Section of Pulmonology, University of Santo Tomas Hospital, Manila, Philippines[3]; Department of Pediatrics, Chinese General Hospital and Medical Center, Manila, Philippines[4]

陳素芳[1,2]、宋文舉[2]、林建亨[2]、陳培敏[3,4]

馬來西亞吉隆坡東姑阿茲莎醫院,(吉隆坡婦女儿童醫院),小兒科呼吸科[1]; 中國醫藥大學兒童醫院兒童胸腔暨重症科[2]; 菲律賓馬尼拉聖托馬斯大學醫院小兒科呼吸科[3]; 菲律賓馬尼拉中國綜合醫院暨醫療中心小兒科[4]

Background: Pediatric Interventional Pulmonology (PIP) has evolved over the last decade, making bronchoscopic balloon dilatation (BD) as a primary or adjunctive therapy for compromised airways. This study evaluates the role and safety of BD in paediatric airway while using Soong's Ventilation to facilitate the whole procedure.

Methods: A retrospective analysis was performed on the electronic medical reports and flexible bronchoscopy (FB) reports over a 3-year period from Jan 2023 till December 2025. All BD interventions were performed via FB using Soong's Ventilation.

Results: A total of 100 balloon dilatation procedures were performed on 49 patients. The cohort consisted of 28 males (57%) and 21 females (43%). The median age at the time of intervention was 4.0 years old (range: 21 days – 29 years), with a median weight of 12.0 kg (range: 2.7 kg – 70 kg). BD was most commonly performed in the trachea (43%) and bronchus (35%). The rest of the dilatation procedures were carried out at the nasal cavity (6%) and subglottis (5%). Complex multi-level stenosis accounted for 11% of cases. Balloon diameters with size 8mm (33%) being the most frequently used size. Despite total airway occlusion during balloon inflation, Soong's Ventilation effectively maintained saturation with no major complications observed. Technical success was achieved in 64% of the procedures in one attempt while the remaining 36% required repeat BD.

Conclusions: Balloon dilatation is a highly versatile tool that is currently underutilized in pediatric respiratory medicine. Our data demonstrates that BD is feasible and effective across the entire respiratory tract. The combination of Soong's Ventilation acts as a safety net which ensures continuous ventilation even during apneic episodes while performing BD. This approach allows us to safely expand the indications for BD, treating complex, multi-level airway narrowing.

47 **Association between Impulse Oscillometry Parameters and Spirometrics Indices in Symptomatic Children with Asthma**
有症狀氣喘兒童之脈衝震盪參數與肺功能指標的相關性研究

Yu-Cheng Chu[1], Tang-Hsu Hsieh[3], Shih-Hsing Lo[3], Yen-Hsien Wu[1], Yi-Ching Liu[1,2], Zen-Kong Dai[1,2], Jiunn-Ren Wu[1,2], Jong-Hau Hsu[1,2], I-Chen Chen[2,3]
Department of Pediatrics, Kaohsiung Medical University Hospital[1]; Department of Pediatrics, School of Medicine, College of Medicine, Kaohsiung Medical University[2]; Department of Pediatrics, Kaohsiung Medical University Gangshan Hospital[3]
朱禹成 [1]、謝堂旭 [3]、羅時興 [3]、吳彥賢 [1]、劉怡慶 [1,2]、戴任恭 [1,2]、吳俊仁 [1,2]、徐仲豪 [1,2]、陳怡真 [2,3]
高雄醫學大學附設中和紀念醫院兒科部 [1]; 高雄醫學大學醫學院醫學系兒科學 [2]; 高雄醫學大學附設高醫岡山醫院兒科 [3]

Background: Lung function assessment is essential for monitoring pediatric asthma. Spirometry is the standard diagnostic tool; however, its requirement for forceful respiratory maneuvers limits feasibility in young children. Impulse oscillometry (IOS) is an effort-independent technique based on tidal breathing and may offer an alternative or complementary method. This study aimed to evaluate the relationship between IOS parameters and conventional spirometric indices in children with asthma.
Methods: We conducted a retrospective chart review of pediatric patients at university hospital who underwent both IOS and spirometry between August 2024 and January 2025. Clinical data included respiratory symptoms, asthma-related medication use, and demographic and anthropometric variables. IOS parameters analyzed were X5 (% predicted), Fres (% pre/pred), AX, R5 (% pre/pred), and R20 (% pre/pred). Spirometric indices included FVC %, FEV_1 %, FEV_1/FVC %, PEF %, FEF25 %, FEF50 %, FEF75 %, and MMEF25–75 %. Associations between IOS and spirometric measures were assessed using Pearson's correlation.
Results: Of 210 records screened, 189 children aged 2–18 years were included. Significant correlations were identified between IOS and spirometry. X5 (% predicted) demonstrated correlations with FEV_1 %, FVC %, FEV_1/FVC %, and PEF %. Fres showed negative correlations with FVC %, FEV_1 %, and small-airway flow indices. AX was inversely correlated with multiple spirometric measures, particularly those reflecting small-airway function.
Conclusions: Key IOS parameters, especially X5, Fres, and AX, are associated with spirometric indices in pediatric asthma. IOS may serve as a valuable complementary tool when spirometry is difficult to perform. IOS may enable earlier and more reliable assessment of airway dysfunction in young or uncooperative children, thereby supporting clinical decision-making in routine pediatric asthma care.

48 **Clinical manifestation of children with adenoid hypertrophy, a single center cross-sectional study**
腺樣體肥大兒童之臨床表徵，單一醫學中心橫斷性研究

Chieh Ho Chen, Jian-Tao Chen, Teck-King Tan
Department of Pediatrics, Asia University Hospital
陳傑賀、陳劍韜、陳德慶
亞洲大學附設醫院兒科部

Background: Adenoid hypertrophy is prevalent in children, yet its association with lower-airway physiology—particularly small-airway mechanics—remains uncertain. We examined whether adenoid size, quantified by the adenoid-to-nasopharyngeal ratio (A/N ratio) on lateral cephalometry, is linked to differences in impulse oscillometry (IOS), spirometry, and allergic/inflammatory biomarkers.
Methods: This cross-sectional analysis included 51 children with available A/N ratio data, stratified into A/N <0.6 (n=15) and A/N ≥ 0.6 (n=36). We compared demographics, asthma history, smoking exposure, biomarkers (total IgE, blood eosinophils, eosinophil cationic protein [ECP]), spirometry (FEV1, FVC, FEV1/FVC, maximal mid-expiratory flow [MMEF]), and IOS indices (R5, R20, R5–R20, X5, AX, resonant frequency). Sample sizes varied by variable due to missing data. Two-sided tests were used; P <0.05 was considered significant.
Results: Median age was 5.0 years [4.0, 7.0]; 66.0% were male (33/50). Baseline characteristics were comparable between groups: age 7.0 [4.5, 8.5] vs 5.0 [4.0, 6.3] years (P=0.182), male 53.3% vs 71.4% (P=0.216), height 122.7±20.6 vs 113.3±14.9 cm (P=0.122), and weight 21.0 [17.0, 28.7] vs 19.9 [16.4, 25.3] kg (P=0.469). Asthma (46.2% vs 26.7%, P=0.292) and smoking exposure (18.2% vs 32.1%, P=0.461) did not differ. Biomarkers were similar (IgE P=0.843; eosinophils P=0.556; ECP P=0.800). Spirometry showed no significant differences (FEV1 P=0.867; FVC P=0.768; FEV1/FVC P=0.554; MMEF P=0.431). IOS indices were also non-significant overall, with a borderline higher resonant frequency in A/N ≥ 0.6 (16.3 [13.5, 19.9] vs 19.5 [18.3, 21.6] Hz; P=0.058) and a trend in R20 (P=0.071).
Conclusions: Using an A/N ratio cutoff of 0.6, adenoid size was not significantly associated with spirometry, IOS, or allergic biomarkers in this cohort. The borderline elevation in resonant frequency among children with larger adenoids suggests a possible signal of altered peripheral airway mechanics that merits validation in larger, prospective study.

49 **Testicular Torsion Presenting with Acute Abdominal Pain in Children:10 Years of Single-Institution Experience**
以急性腹痛為表現的兒童睪丸扭轉: 10 年單一醫學中心之經驗

Pei-Wen Sun[1], Lung-Huang Lin[1,2], Lung-Huang Lin[3]
Department of Pediatrics, Cathay General Hospital, Taipei, Taiwan [1], School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan [2], Department of Urology, Cathay General Hospital, Taipei, Taiwan [3]
孫培文 [1]、林隆煌 [1,2]、蔡樹衛 [3]
國泰綜合醫院兒童醫學部 [1]; 輔仁大學醫學院 [2]; 國泰綜合

醫院泌尿科 [3]

Background: The differential diagnosis of children presenting with abdominal pain is very broad and includes pathology of both intra- and extra-abdominal organs. Testicular torsion can present with abdominal pain that mimics appendicitis and can lead to serious complications if not diagnosed promptly. Therefore, it is important to perform a complete physical examination, including a genital examination, when evaluating a child with abdominal pain. The purpose of this article is to review the management and prognosis of children with testicular torsion who present with acute abdominal pain as the first symptom.
Methods: The medical records of 20 children who underwent surgery for testicular torsion between January 2015 and December 2024 were retrospectively reviewed. Of these, 6 patients (30%) presented with both abdominal and scrotal pain, and 1 patient (5%) presented with only abdominal pain without initial scrotal pain. Only these 7 patients were included in this study.
Results: All 7 patients underwent testicular examination due to abdominal pain during the initial physical examination. During surgery, 5 testicles were salvaged and 2 were lost due to testicular necrosis.
Conclusions: Testicular torsion is rare, affecting about 1 in 4,000 men under the age of 25.Testicular torsion is a urological emergency and early detection is essential to avoid orchiectomy. Ultrasound is the ideal imaging modality to evaluate the scrotal contents. Testicular torsion should always be considered in the differential diagnosis of lower abdominal pain in young men. All children or adolescents presenting with acute abdominal pain should have their external genitalia examined. Testicular preservation is possible with timely recognition and intervention.

50 **Reducing Central Line–Associated Bloodstream Infections in a Taiwanese PICU: A Localized Maintenance Bundle Approach**
降低台灣兒童加護病房中央靜脈導管相關血流感染：在地化管路維護組合措施之應用

Jeng-Hung Wu[1,2], Shu-Ru Uen[3], Yi-Shin Lin[3], Yi Pan[3], Ying-Hao Yu[2], Ching-Chia Wang[2], En-Ting Wu[2], Frank Leigh Lu[2], Chun-Yi Lu[2], Luan-Yin Chang[2]
Good Liver Foundation [1]; Department of Pediatrics, National Taiwan University Hospital [2]; Department of Nursing, National Taiwan University Hospital [3]
吳政宏 [1,2]、溫淑如 [3]、林怡馨 [3]、潘儀 [3]、余英豪 [2]、王景甲 [2]、吳恩婷 [2]、呂立 [2]、呂俊毅 [2]、張鑾英 [2]
醫療財團法人好心肝基金會 [1]; 國立臺灣大學醫學院附設醫院小兒部 [2]、護理部 [3]

Background: Central line-associated bloodstream infections (CLABSI) significantly increase mortality and costs in pediatric intensive care units (PICU). Despite existing interventions to reduce CLABSI, their localized effectiveness remains unclear. This study assessed a localized maintenance bundle in reducing CLABSI rates in a Taiwanese PICU.
Methods: This retrospective, quasi-experimental study compared a baseline period (Jan–Dec 2023, n=167) to an intervention period (Jan–Dec 2025, n=209) following protocol implementation in 2024. The intervention consisted of daily aggressive 2% chlorhexidine (CHG) scrubbing of hubs and maintaining sterile gauze barriers over all ports of all implanted central venous catheters (CVC). The CLABSI rate was calculated per 1,000 catheter-days. Device Utilization Ratio (DUR), defined as total CVC days divided by total patient days, measured invasive device intensity. The outcomes included CLABSI rate, DUR, and independent predictors of infection identified via multivariate logistic regression.
Results: During the study, the CLABSI rate dropped significantly from 2.65 to 0.31 per 1,000 catheter-days (P = 0.016), representing an 88.3% reduction after the intervention, but the DUR increased from 0.64 to 0.76. There were no significant differences between the baseline and intervention groups regarding the proportion of male sex (52.1% vs. 44.5%), neck cannulation (64.7% vs. 71.3%), or median age (2.2 vs. 2.9 years) and CVC durations (11 vs. 12 days). Multivariate logistic regression identified the maintenance bundle as a strong independent protective factor (OR: 0.11, 95% CI: 0.01–0.93, P = 0.043) but a history of previous CVC placement as a significant independent risk factor (OR: 5.35, 95% CI: 1.05–27.19, P = 0.043).
Conclusions: Daily 2% chlorhexidine scrubbing and sterile gauze port coverage successfully reduced CLABSI by 88.3% in our PICU despite elevated device utilization. This strategy was highly effective, though future multicenter and cost-effectiveness studies are recommended.

51 **A Noval Peak Inspiration Detection System**
一種新型的峰值吸氣檢測系統

Bing-Syun Lin[1], Tsung-Ter Kuo[1], Yen-Hsi Kuo[2], Kai-Sheng Hsieh[3]
Department of Medical Imaging and Radiological Technology, Yuanpei University of Medical Technology, Hsinchu, Taiwan[1];Department of Surveying Engineering, National Cheng Kung University, Tainan, Taiwan[2];Ultrasound and Structural Heart Diseases Center, China Medical University Children's Hospital, Taichung, Taiwan[3]
林秉訓 [1]、郭宗德 [1]、郭彥希 [2]、謝凱生 [3]
元培醫事科技大學醫學影像放射技術學系,台灣新竹 [1];國立成功大學測量工程系,台灣台南 [2];中國醫藥大學附設兒童醫院超音波及結構性心臟病中心,台灣台中 [3]

Background: Accurate identification of specific points along the respiratory waveform is a fundamental task in clinical and biomedical research. However, conventional analog methods often face severe limitations, including background noise, signal drift, and poor temporal resolution, all of which compromise precision. This study aims to develop a system that integrates Artificial Intelligence (AI) interpretation with a sensing device to identify peak inspiratory points within serial respiratory waves.
Methods: A custom-built infant phantom was developed to simulate respiratory motion. It contained two inflatable bags positioned in each hemithorax beneath a flexible external layer. By alternately inflating and deflating these bags, the phantom reproduced rhythmic chest wall movement. To record motion, an elastic belt embedded with an electric circuit was positioned around the junction of the lower chest and upper abdomen—an optimal site for capturing

thoracoabdominal expansion. These signals were recorded and analyzed by the AI algorithm to identify respiratory peaks automatically.
Results: First, we examined the relationship between measured electric capacitance and actual belt displacement during airbag inflation and deflation. The belt's circumferential displacement ranged from 1.0 mm to 25.0 mm. The results showed an excellent linear correlation: Y = 0.5304X – 55.989, where X was capacitance and Y displacement. Secndly, maximal inflation was fixed for each respiratory cycle, and metallic markers on the phantom chest verified motion amplitude. The AI model correctly detected the peak inspiratory point in 90% of ten trials, demonstrating high accuracy and stability.
Conclusions: This study demonstrated that an AI-assisted approach can effectively identify the peak inspiratory point within a respiratory cycle. The system achieved greater precision than traditional analog methods. Future work will incorporate patient data, refine the AI model, and enhance sensor design for clinical or wearable use.

52 **Investigating Whether Probiotic-Derived Anti-Allergic Proteins Restore Impaired Epidermal Barrier Through Activation of the Aryl Hydrocarbon Receptor Signaling Pathway**
探討乳酸菌抗過敏蛋白是否透過活化芳香烴受體訊號路徑以修復受損表皮屏障

Yu-Ting Chiu, Yan-Yi Low, Jiun-An Chen, Huan-Cheng Lai, Hsiao-Chuan Lin, Kao-Pin Hwang, Jiu-Yao Wang
Pediatric Infectious Diseases, China Medical University Children's Hospital, China Medical University,Taichung, Taiwan
邱玉婷、劉衍怡、陳俊安、賴奐丞、林曉娟、黃高彬、王志堯
中國醫藥大學兒童醫院兒童感染科

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by immune dysregulation and impaired skin barrier function. Long-term use of corticosteroids and immunosuppressants is associated with adverse effects, highlighting the need for safer therapeutic strategies. Our previous studies identified a moonlighting protein, glyceraldehyde-3-phosphate dehydrogenase from Lactobacillus gasseri (LGp40), which exhibits immunometabolic and anti-allergic activities in macrophages. However, its role in regulating keratinocyte inflammation and barrier repair in AD remains unclear. Since activation of the aryl hydrocarbon receptor (AhR) suppresses inflammation and promotes barrier integrity, this study investigates whether LGp40 exerts therapeutic effects via AhR signaling.
Methods: An in vitro AD model was established using HaCaT human keratinocytes under type 2 inflammatory conditions. The effects of LGp40 on AhR activation were assessed by analyzing AhR nuclear translocation and downstream gene expression. Inflammatory responses and barrier-associated markers were evaluated following LGp40 treatment with or without AhR inhibition. Activation of the kynurenine pathway and endogenous AhR ligand production were also examined.
Results: Reanalysis of RNA sequencing data from LGp40-treated murine bone marrow–derived macrophages revealed phenotype-dependent modulation of AhR-related signaling. In both M0 and M2 macrophages, LGp40 significantly upregulated AHR and CYP1B1, indicating potential direct AhR activation, while AHRR and ARNT expression remained unchanged, suggesting a noncanonical mechanism. LGp40 also increased expression of kynurenine pathway enzymes, including IDO1, IDO2, and KMO, supporting indirect AhR activation through enhanced endogenous ligand production.
Conclusions: LGp40 modulates AhR signaling through both direct and indirect pathways, contributing to its immunomodulatory and barrier-protective effects relevant to AD. These findings provide mechanistic insight into probiotic-derived regulation of skin inflammation and support LGp40 as a promising and safe therapeutic candidate for atopic dermatitis.

53 **Exploring Microbiota Dynamics and Pulmonary Disease Progression in SP-D Knockout Mice: A Gut–Lung Axis Perspective**
以 SP-D 基因剔除小鼠模型探討肺部疾病進展與菌相叢變化之交互關聯性

Hsiao-Chuan Lin, Chien-Hui Lin, Huan-Cheng Lai, Yu-Ting Chiu, Yan-Yi Low, Jiun-An Chen, Kao-Pin Hwang
Pediatric Infectious Diseases, China Medical University Children's Hospital, China Medical University,Taichung, Taiwan
林曉娟、林芊慧、賴奐丞、邱玉婷、劉衍怡、陳俊安、黃高彬
中國醫藥大學兒童醫院兒童感染科

Background: Surfactant protein D (SP-D), secreted by alveolar type II epithelial cells, plays a key role in pulmonary host defense, immune regulation, and alveolar homeostasis. SP-D knockout (SP-D KO) mice develop spontaneous emphysema and chronic lung inflammation and serve as a model of immune dysregulation. Increasing evidence supports the gut–lung axis as an important regulator of pulmonary immunity; however, its association with SP-D deficiency remains unclear.
Methods: SP-D KO mice and wild-type controls will be studied across developmental stages. Gut microbiota composition will be analyzed using 16S rRNA gene sequencing. Lung pathology will be evaluated by histological analysis, and pulmonary inflammatory responses will be assessed by measuring cytokines and chemokines, including IL-6 and CXCL1. Comparative and correlation analyses will be performed to examine associations between microbial taxa and pulmonary pathological features.
Results: Simpson index–based α-diversity analysis revealed significant differences in microbial diversity between exposure conditions (O_3 versus air) and among tissue compartments. Distinct diversity patterns were observed among alveolar, cecal, and serum samples. β-diversity analysis using principal coordinates analysis (PCoA) based on unweighted UniFrac distances demonstrated clear clustering of microbial communities by anatomical site. Alveolar microbiota were distinctly separated from cecal microbiota, indicating pronounced site-specific microbial composition. This pattern was consistently observed in both wild-type and SP-D KO mice. In addition, O_3 exposure was associated with shifts in microbial community distribution within compartments.
Conclusions: These findings suggest that SP-D deficiency is associated with altered microbiota composition across

anatomical sites and environmental exposure conditions. Anatomical compartment appears to be a dominant determinant of microbiota structure, while SP-D loss and O_3 exposure further modulate microbial distribution. This study supports an interaction between SP-D, environmental stressors, and the gut–lung axis in regulating pulmonary immune homeostasis.

54 **Exploring the Immunomodulatory Effects of Bacterial Extracellular Vesicles on Macrophage Polarization: Insights into Inflammatory and Immune Regulatory Mechanisms**

細菌來源胞外囊泡對巨噬細胞極化之影響：發炎反應與免疫調控潛在機制的探索

Huan-Cheng Lai[1], Jiun-An Chen[1], Yu-Ting Chiu[1], Yan-Yi Low[1], Hsiao-Chuan Lin[1], Jiu-Yao Wang[2,3], Kao-Pin Hwang[1]
Division of Pediatric Infectious Diseases, China Medical University Children's Hospital, China Medical University – Taichung, Taiwan[1]; Department of Allergy and Immunology, China Medical University Children's Hospital, Taichung, Taiwan[2]; Center for Allergy, Immunology, and Microbiome (A.I.M.), China Medical University Hospital, Taichung, Taiwan, China[3]
賴奐丞[1]、陳俊安[1]、邱玉婷[1]、劉衍怡[1]、林曉娟[1]、王志堯[2,3]、黃高彬[1]
中國醫藥大學兒童醫院兒童感染科[1]; 中國醫藥大學兒童醫院兒童過敏免疫風濕科[2]; 中國醫藥大學附設醫院過敏免疫及微菌叢研究中心[3]

Background: Macrophages are highly plastic immune cells that dynamically respond to environmental cues through polarization, playing a critical role in immune homeostasis and disease pathogenesis. Pro-inflammatory M1 macrophages, induced by LPS or IFN-γ, produce high levels of inflammatory mediators, whereas M2 macrophages, driven by IL-4 and IL-13, promote anti-inflammatory responses and tissue repair. Extracellular vesicles (EVs), including bacteria-derived outer membrane vesicles (OMVs), have emerged as important mediators of host–microbiota communication; however, their direct effects on macrophage polarization remain incompletely understood.
Methods: Extracellular vesicles were isolated from selected bacterial strains, including Escherichia coli, Lactobacillus, and Bacteroides. RAW264.7 murine macrophages were treated with bacterial EVs in vitro, and macrophage polarization was evaluated by analyzing M1- and M2-associated surface markers, inflammatory cytokines, and immunoregulatory factors using molecular and immunological assays.
Results: Bacterial EV treatment induced distinct macrophage polarization profiles depending on strain origin. EVs from strains A33323 and A11741 significantly increased the proportion of $F4/80^+CD38^+$ macrophages, indicating a pro-inflammatory M1 bias. In contrast, EVs derived from strain GL104 preferentially enhanced $F4/80^+CD206^+$ expression, suggesting induction of an anti-inflammatory M2 phenotype. EVs from strain CT53 showed relatively modest effects on polarization. These findings demonstrate strain-specific immunomodulatory effects of bacterial EVs on macrophage functional states.
Conclusions: This study provides direct evidence that bacterial extracellular vesicles differentially regulate macrophage polarization in a strain-dependent manner. By shaping M1 or M2 phenotypes, microbiota-derived EVs act as key modulators of innate immune responses and immune homeostasis. These results establish a mechanistic foundation for future studies on host–microbiota interactions and support the potential development of EV-based or microbiota-targeted immunomodulatory therapies.

55 已撤稿

56 **Central Venous Catheter Salvage in Pediatric Patients with Gram-positive Central Line–Associated Bloodstream Infection**

中心靜脈導管抗生素封存療法對革蘭氏陽性菌所致導管相關血流感染管路保留成功之影響

Hsin-Ting Chen[1,2], Hsin Chi[1,2,3,4], Nan-Chang Chiu[1,2,3], Daniel Tsung-Ning Huang[1,2,3], Ching-ying Huang[1,2,3], Chia-Jung Chang[1,2], Lung Chang[1,2,3], Yen-Hsin Kung[1,2]
Department of Pediatrics, Mackay Memorial Hospital[1]; Division of Pediatric Infectious Diseases, Mackay Children's Hospital[2]; Department of Medicine, College of Medicine, Mackay Medical University[3]; Department of Medical Research, Mackay Memorial Hospital[4]; Division of Pediatric Neurology, Mackay Children's Hospital[5]
陳心婷[1,2]、紀鑫[1,2,3,4]、邱南昌[1,2,3]、黃瑽寧[1,2,3]、黃競瑩[1,2,3]、張佳容[1,2]、張龍[1,2,3]、龔妍心[1,2]
馬偕紀念醫院小兒科[1]; 馬偕兒童醫院小兒感染科[2]; 馬偕醫學大學醫學院醫學系[3]; 馬偕紀念醫院醫學研究部[4]

Background: Central line–associated bloodstream infection (CLABSI) caused by Gram-positive bacteria is common in pediatric patients. Catheter salvage is often attempted, but the clinical impact of antimicrobial lock therapy and optimal antibiotic selection remain uncertain. This study evaluated catheter retention outcomes in pediatric Gram-positive CLABSI.
Methods: We retrospectively reviewed pediatric patients diagnosed with CLABSI at a tertiary children's hospital between January 2008 and April 2025. Patient characteristics, catheter types, pathogens, antimicrobial regimens, and outcomes were analyzed. The primary outcomes were catheter retention and microbiological eradication. Outcomes were compared between systemic antibiotics alone and systemic antibiotics combined with antimicrobial lock therapy, as well as between daptomycin and vancomycin used for lock therapy.
Results: A total of 90 patients with 209 CLABSI episodes were identified, including 129 Gram-positive episodes (61.7%). Among evaluable episodes, 18 received adjunctive lock therapy and 77 received systemic antibiotics alone. Catheter retention success rates were 77.8% with lock therapy and 77.9% without lock therapy (OR 0.99, 95% CI 0.29–3.41; p=1.000). Microbiological eradication was achieved in 88.2% with lock therapy and 78.6% without lock therapy (OR 2.32, 95% CI 0.48–11.17; p=0.457). A Bayesian analysis showed a 77% posterior probability of higher microbiological eradication with lock therapy. In exploratory analyses, catheter retention success within the lock therapy group was 70.0% with daptomycin (n=10) and 85.7% with vancomycin (n=7) (p=0.603).
Conclusions: Antimicrobial lock therapy was not associated with a clear improvement in catheter retention or microbiological eradication in pediatric patients with Gram-positive CLABSI. Outcomes appeared comparable between daptomycin and vancomycin lock therapy. These findings

should be interpreted cautiously given the small sample size and retrospective design, and require confirmation in larger prospective studies.

57 **The Relationship between Gastric Juice Culture of Newborn and Neonatal Sepsis**
新生兒出生胃液細菌培養與新生兒敗血症之相關性

Yi-Chen Chien[1,2], Hsin Chi[1,2,3,4], Nan-Chang Chiu[1,2,3], Daniel Tsung-Ning Huang[1,2,3], Ching-Ying Huang[1,2,3], Chia-Jung Chang[1,2], Lung Chang[1,2,3], Yen-Hsin Kung[1,2]
Department of Pediatrics, Mackay Memorial Hospital[1]; Division of Pediatric Infectious Diseases, Mackay Children's Hospital[2]; Department of Medicine, College of Medicine, Mackay Medical University[3]; Department of Medical Research, Mackay Memorial Hospital[4]
簡奕晨 [1,2]、紀鑫 [1,2,3,4]、邱南昌 [1,2,3]、黃璁寧 [1,2,3]、黃競瑩 [1,2,3]、張佳容 [1,2]、張龍 [1,2,3]、龔妍心 [1,2]
馬偕紀念醫院小兒科 [1];馬偕兒童醫院小兒感染科 [2];馬偕醫學大學醫學院醫學系 [3];馬偕紀念醫院醫學研究部 [4]

Background: Neonatal respiratory distress shortly after birth is sometimes associated with infection and may progress to neonatal sepsis. Early identification of potential pathogens remains challenging because blood cultures are frequently negative in the early postnatal period. Gastric juice culture has been suggested as a potential tool for early pathogen detection; however, related data from Taiwan are limited.
Methods: We conducted a retrospective study including neonates younger than 7 days of age who were admitted to Mackay Children's Hospital between January 1, 2013, and December 31, 2024, with a diagnosis of neonatal respiratory distress and who underwent gastric juice culture examination. Neonates older than 7 days at the time of admission were excluded. Gastric juice culture results were analyzed in relation to neonatal sepsis status, blood culture results, and maternal culture findings, including endocervical and placental cultures. Neonatal sepsis was defined as sepsis with positive blood culture results.
Results: After exclusion, a total of 1,740 neonates were included in the analysis. Among them, 250 neonates (14.4%) had positive gastric juice culture results. Of these gastric juice culture–positive neonates, 33 cases were diagnosed neonatal sepsis with positive blood cultures. In these cases, a high concordance between blood culture pathogens and gastric juice culture isolates was observed, with an exact species-level match in 30 of 33 cases (90.9%). Gastric juice culture pathogens also showed a strong association with maternal placental culture results (concordance rate 86.2%), whereas concordance with maternal endocervical cultures was lower (39.0%). The presence of premature rupture of membranes (PROM or PPROM) did not significantly affect concordance rates.
Conclusions: Gastric juice culture showed a strong association with pathogens identified in neonatal sepsis and maternal placental cultures. Even in the absence of positive blood cultures, gastric juice culture may serve as a useful adjunctive tool to support early antibiotic decision-making in neonates with suspected infection.

58 **Age-Stratified Clinical Impact of Moraxella catarrhalis Detection in Respiratory Illnesses in Taiwan**
卡他莫拉菌(Moraxella catarrhalis)於臺灣呼吸道疾病中之年齡分層臨床影響

Yen-Chieh Chin[1], Tai-Fen Lee[2], Yu-Tsung Huang[2], Shu-Yuan Ho[2], Ya-Li Hu[1], Ting-Yu Yen[1,3], Kuan-Ying Huang[1,4], Chun-Yi Lu[1], Li-Min Huang[1], Luan-Yin Chang[1,3,5]
Department of Pediatrics, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan [1]; Department of Laboratory Medicine, National Taiwan University Hospital, National Taiwan University College of Medicime, Taipei, Taiwan[2]; Graduate Institute of Clinical Medicine, College of Medicine, National Taiwan University, Taipei, Taiwan[3]; Graduate Institute of Immunology, College of Medicine, National Taiwan University, Taipei, Taiwan[4]; Institute of Epidemiology and Preventive Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan[5]
金彥杰 [1]、李岱芬 [2]、黃昱璁 [2]、何淑媛 [2]、胡雅莉 [1]、顏廷聿 [1,3]、黃冠穎 [1,4]、呂俊毅 [1]、黃立民 [1]、張鑾英 [1,3,5]
國立臺灣大學醫學院附設醫院小兒部 [1]; 國立臺灣大學醫學院附設醫院檢驗醫學部 [2]; 國立臺灣大學醫學院 臨床醫學研究所 [3]; 國立臺灣大學醫學院 免疫學研究所 [4]; 國立臺灣大學公共衛生學院 流行病學與預防醫學研究所 [5]

Background: Moraxella catarrhalis is a common respiratory commensal and opportunistic pathogen, particularly in children and older adults. Although its role in acute otitis media and COPD exacerbations is established, the clinical significance of its detection in respiratory specimens—especially regarding co-pathogens and disease severity—remains incompletely defined in the post–pneumococcal conjugate vaccine and post–COVID-19 era.
Methods: We retrospectively analyzed all patients with M. catarrhalis–positive clinical specimens collected at a tertiary medical center in Taiwan from January 2015 to December 2023. Demographics, underlying conditions, specimen settings, microbiological findings, diagnoses, imaging features, and outcomes were compared between pediatric ($<$ 18 years) and adult patients. Group comparisons used χ^2/Fisher's exact and Mann–Whitney U tests. Seasonal patterns were assessed using χ^2 goodness-of-fit test. Age-stratified multivariable logistic regression identified factors associated with respiratory failure.
Results: Among 731 patients, 515 were children and 216 adults. Pediatric detections mainly occurred in inpatient settings and were frequently associated with viral co-infection, whereas adults more often showed polymicrobial bacterial detection. Asthma/allergic diseases and prematurity were common pediatric comorbidities, while chronic kidney disease, cardiovascular disease, and malignancy predominated in adults. Children more often presented with upper or non-pneumonic lower respiratory tract infections, whereas adults had higher rates of pneumonia and lobar consolidation. Case distributions were higher in autumn and winter (χ^2, $p < 0.001$). Hospitalization was more frequent in children, while respiratory failure rates were comparable. Prematurity and rhinovirus/enterovirus co-detection were independently associated with respiratory failure in children, whereas chronic kidney disease, malignancy, and viral co-infection were significant risk factors in adults.
Conclusions: The clinical implications of M. catarrhalis detection differ between children and adults, reflecting age-specific host vulnerabilities and microbial interactions.

59 **Estimated Respiratory Syncytial Virus-Related Hospitalizations Among Children and Adults in Taiwan between 2010–2019**

2010–2019 年期間台灣兒童與成人呼吸道融合病毒相關住院之估計

Yi-Hsuan Wang[1], Pin-Chen Huang[2], Shih-Wei Wang[2], Ju-Ling Chen[3,4], Yu-Ching Chang[3,4,5], Ching-Lan Cheng[3,4], Ching-Fen Shen[2]

School of Medicine, College of medicine, National Cheng Kung University[1]; Department of Pediatrics, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University[2]; Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University[3]; Department of Pharmacy, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University[4]; Health Outcome Research Center, National Cheng Kung University[5]

王宜暄 [1]、黃品貞 [2]、王詩維 [2]、陳儒伶 [3,4]、張育菁 [3,4,5]、鄭靜蘭 [3,4]、沈靜芬 [2]

國立成功大學醫學系 [1];國立成功大學醫學院附設醫院小兒科 [2];國立成功大學臨床藥學研究所 [3];國立成功大學醫學院附設醫院藥劑部 [4];國立成功大學醫療效益研究中心 [5]

Background: Respiratory syncytial virus (RSV) is a leading cause of lower respiratory tract infections in children, contributing to significant disease and healthcare burden. However, its impact among adults and the elderly is less well defined due to low clinical suspicion and under-diagnosis. This study utilizes statistical modeling to estimate the hidden RSV burden across different age groups, providing evidence to support future prevention strategies.

Methods: Nationwidedata from Taiwan's National Health Insurance Database (2010–2019) were analyzed. RSV activity was proxied using hospitalizations in children ＜2 years (ICD-9-CM: 079.6, 466.19, 466.11, 480.1; ICD-10-CM: B97.4, J21.0, J12.1, J20.5, J21.9); influenza activity using hospitalizations in children ＜ 2 years (pediatric models) and adults ≥65 years (adult models). Cardiorespiratory outcomes were defined by ICD codes (ICD-9-CM: 390–519, ICD-10-CM: I00–J99) and modeled with quasi-Poisson regression including seasonal and non-seasonal trends.

Results: RSV infection has been associated with cardiovascular events, potentially mediated by myocardial involvement and infection-related systemic inflammation. Among children, RSV-attributable respiratory hospitalization rates were highest in infants younger than 1 year (2,731–4,615 cases per 100,000 person-years), accounting for approximately 48% of all respiratory hospitalizations, and declined with age. In adults, RSV-attributable respiratory hospitalization rates increased with age and peaked among persons ≥75 years (978–1,733 cases per 100,000; approximately 7% of all respiratory hospitalizations), whereas RSV-attributable cardiorespiratory hospitalization rates showed a parallel age-related increase and were highest in this group (2,160–3,827 cases per 100,000; approximately 6% of all cardiorespiratory hospitalizations).

Conclusions: Estimated RSV-related hospitalizations were significantly higher than what standard RSV-specific coding captures, especially among older children and adults. Beyond respiratory illness, RSV also contributes to cardiovascular complications, with disease burden shifting from primarily respiratory in infants to more cardiovascular in older adults.

60 已撤稿

61 **Echovirus 11 Infection in Neonates in 2025: A Case Series from a Tertiary Medical Center in Taiwan**

中台灣單一醫學中心新生兒 Echoivrus 11 感染病例系列

Cheng-Yu Hou[1], Yu-Ting Chiu[2], Yan Yi Low[2], Jiun-An Chen[2], Huan-Cheng Lai[2], Hsiao-Chuan Lin[2], Kao-Pin Hwang[2]

China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[1]; Pediatric Infectious Diseases, China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[2]

侯承佑 [1]、邱玉婷 [2]、劉衍怡 [2]、陳俊安 [2]、賴奐丞 [2]、林曉娟 [2]、黃高彬 [2]

中國醫藥大學兒童醫院內科部 [1], 中國醫藥大學兒童醫院兒童感染科 [2]

Background: Enterovirus (EV) infection is among the most common viral outbreaks in neonatal intensive care units (NICUs). Echovirus 11 is a predominant causative agent of EV epidemics in neonates. Recent outbreaks have highlighted its association with severe sepsis-like illness, hepatitis, coagulopathy, myocarditis, and high mortality during the neonatal period. Early recognition remains challenging due to its nonspecific clinical presentation.

Methods: We present a case series of 3 neonates diagnosed with Echovirus 11 infection who were admitted to a tertiary neonatal intensive care unit from May 2025 to August 2025. Cases were identified through positive enterovirus culture, RT-PCR, or multiplex PCR testing of blood, cerebrospinal fluid, stool, or respiratory specimens. Demographic data, clinical features, laboratory findings, management strategies, and outcomes were retrospectively reviewed.

Results: All neonates presented within the first seven days of life. Two neonates exhibited poor feeding, abdominal distension, lethargy, and respiratory distress, symptoms initially indistinguishable from bacterial sepsis. One neonate presented with neonatal jaundice and poor activity as the initial symptoms. Family members of two neonates experienced symptoms of upper respiratory tract infection. Laboratory evaluation revealed thrombocytopenia, elevated inflammatory markers, significant transaminase elevations, and coagulopathy. Multiplex PCR was the earliest diagnostic test to yield a positive result in all cases. Despite aggressive supportive management, including IVIG treatment and respiratory and circulatory support, two neonates died, and one developed neurological sequela.

Conclusions: Neonatal Echovirus 11 infection should be considered in neonates presenting with sepsis-like illness, particularly when it is accompanied by thrombocytopenia and marked transaminase elevation. Early inclusion of enterovirus RT-PCR testing in the evaluation of neonatal sepsis allows for prompt diagnosis and appropriate clinical management. Increased awareness of characteristic laboratory patterns may further facilitate earlier recognition.

62 **Investigation of Cavopulmonary Flow and Cardiac Energy Transferring in Fontan Patients**
Fontan 術後病人腔靜脈肺動脈血流和心臟動能相關性的研究

Wei-De Wang[1], Ching-Ming Lin[1], Erh-Chieh Hsiang[1], Chu-Chuan Lin[1], Ming-Ting Wu[2], Hsu-Hsia Peng[3], Kai-Sheng Hsieh[4], Ken-pen Weng[1]
Department of Pediatrics, Kaohsiung Veterans General Hospital [1]; Department of Medical Education and Research, Kaohsiung Veterans General Hospital [2]; Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University [3]; Department of Pediatrics, CMU Children's Hospital [4]
王瑋德[1]、林璟銘[1]、相爾傑[1]、林竹川[1]、吳銘庭[2]、彭旭霞[3]、謝凱生[4]、翁根本[1]
高雄榮民總醫院兒童醫學部[1]; 高雄榮民總醫院放射線部[2]; 國立清華大學生醫工程與環境科學系[3];中國醫藥大學兒童醫院兒童內科系[4]

Background: The survival rates of Fontan operation are high, but long-term complications including myocardial dysfunction can often develop. The data on the cavopulmonary circulation are limited. The purpose of our study is to evaluate the flow pattern across Fontan circulation and to correlate ventricular and aortic KE with the cavopulmonary flow pattern using 4D flow MRI.
Methods: The study recruited 32 Fontan patients (17.8 ± 4.3 y/o, M/F 20/12) and 37 age- and sex-matched normal controls (21.7 ± 1.1 y/o, M/F 22/15). Medical records of Fontan patients were reviewed to collect their age, sex, Fontan type, and laboratory data. All subjects underwent 4D flow MRI. Cavopulmonary flow distribution, vessel geometry, intraventricular and aortic kinetic energy (KE), KE efficiency, KE delay, vorticity, and other flow parameters were analyzed using Matlab.
Results: In Fontan group, % of SVC flow to RPA, % of IVC flow to RPA, and % of RPA flow in whole lung were 81.9 ± 28.9 %, 52.9 ± 24.1 % and 58.1 ± 12.6 % respectively. Compared to normal controls, Fontan patients had significantly decreased peak intravenricular systolic KE (1.58 ± 0.93 mJ vs. 2.07 ± 0.88 mJ, p=0.04), decreased peak aortic KE (12.6 ± 6.7 mJ vs. 23.6 ± 6.6 mJ, $p < 0.001$), decreased temporal mean aortic systolic KE (6.0 ± 3.3 mJ vs. 12.3 ± 3.4 mJ, $p < 0.001$), prolonged intraventricular and aortic systolic TTPKE (52.4 ± 10.57 %ES vs. 44.3 ± 5.4 %ES, $p < 0.001$; 66.1 ± 9.1 %ES vs. 51.8 ± 6.6 %ES, $p < 0.001$ respectively), increased KE delay (52.8 ± 17.8 ms vs. 21.7 ± 19.50 ms, $p < 0.001$), and decreased KE efficiency (7.2 ± 4.3 vs. 11.9 ± 3.9, p=0.01). Moderate correlations were found between caval offset and SVC asymmetry (r=0.52, p=0.01), as well as IVC-LPA angle and IVC asymmetry (r=0.49, p=0.02).
Conclusions: Our results demonstrated caval offset were correlated with SVC asymmetry, indirectly affecting ventricular ejection. 4D flow MRI can be used for comprehensive analysis of Fontan flow and potentially provide useful information to evaluate a suitable surgical strategy for Fontan procedure.

63 **Non-Fluoroscopic Catheter Ablation of Right-Sided Accessory Pathways in Pediatric Patients Using a 3D Electroanatomic Mapping System: Mid-Term Outcomes and Predictors of Recurrence**
無輻射三維電解剖定位系統輔助之兒童右側副路徑導管消融術：中期臨床結果與復發預測因子

Wen-Po Fan[1], Chieh-Mao Chuang[2], Pi-Chang Lee[1], I-Hsin Tai[3], Ying-Hsuan Peng[4], Yu-Shin Lee[5], Yun-Ching Fu[2], Ming-Chih Lin[2], Sheng-Lin Jan[2], Shih-Ann Chen[6,7]
Division of Pediatric Cardiology, Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan[1]; Division of Pediatric Cardiology, Children's Medical Center, Taichung Veterans General Hospital, Taichung, Taiwan[2]; Department of Cardiology, China Medical University Children's Hospital, Taichung, Taiwan[3]; Division of Pediatric Cardiology, Department of Pediatrics, Chung Shan Medical University Hospital, Taichung, Taiwan[4]; Division of Pediatric Cardiology, Department of Pediatrics, Chang Gung Memorial Hospital, Linkou Branch, Taoyuan, Taiwan[5]; Cardiovascular Center, Taichung Veterans General Hospital, Taichung, Taiwan[6]; Division of Cardiovascular Medicine, Department of Medicine, China Medical University Hospital, China Medical University, Taichung, Taiwan[7].
范文博[1]、莊傑貿[2]、李必昌[1]、戴以信[3]、彭瀠萱[4]、李昱昕[5]、傅雲慶[2]、林明志[2]、詹聖霖[2]、陳適安[6,7]
台北榮總兒童醫學部兒童心臟科[1]; 台中榮總兒童醫學中心兒童心臟科[2]; 中國醫藥大學兒童醫院兒童心臟科[3]; 中山醫學大學附設醫院兒童心臟科[4]; 林口長庚醫院兒童心臟科[5]; 台中榮總心血管中心[6]; 中國醫藥大學附設醫院心臟科[7]

Background: Radiofrequency (RF) catheter ablation is a first-line therapy for pediatric tachyarrhythmias but raises concerns regarding radiation exposure. Non-fluoroscopic ablation using three-dimensional electroanatomic mapping (3D-EAM) eliminates radiation risks and has proven effective for left-sided accessory pathways (APs). This study evaluated the outcomes of non-fluoroscopic RFCA for right-sided APs in pediatric patients.
Methods: Electrophysiologic study and ablation for right-sided APs were performed under fluoroscopic guidance, 3D-EAM guidance, or both. In the 3D-EAM group, right heart structures were reconstructed. A 5Fr or 7Fr non-irrigated catheter was introduced via the femoral vein, and RF ablation targeted sites of earliest activation. Patients' characteristics and ablation results were collected for data analysis.
Results: From March 2012 to May 2023, we included 66 patients (mean age: 11.5 years, mean body weight: 43.6 kg) with manifest or concealed right-sided APs underwent transcatheter RF ablation in three hospitals. Among the patients, 30 received non-fluoroscopic procedure. There were no significant differences in acute success rate, procedural time, AP locations, number of RF application, time to AP block, and minor complications between fluoroscopic group (X+) and non-fluoroscopic group (X-). No major complication was noted in both groups. No significant differences in recurrence-free survival between the two groups (p=0.137). Mechanical trauma of APs during catheter manipulation was highly related to recurrence, irrelevant to guiding systems. After adjustment for potential confounders, the presence of clinically documented tachycardia and longer cumulative ablation application time were independently associated with prolonged procedural duration.
Conclusions: Non-fluoroscopic ablation of right-sided accessory pathways in pediatric patients reduces radiation

exposure while achieving safety, efficacy, success, complication, and mid-term recurrence rates comparable to conventional fluoroscopic-guided ablation.

64 **Ambulatory ECG Modalities and Their Role in Pediatric Arrhythmia Detection and Management: A Comparative Study**
可攜式心電圖監測工具於小兒心律不整偵測與臨床處置之角色：比較性研究

Yen-Teng Hsu[1,3], Wei-Chieh Tseng[3], Mei-Hwan Wu[3], Chun-Wei Lu[3], Kun-Lang Wu[3,4], Kai-Ti Tseng[2], Shuenn-Nan Shiu[3]
Department of Pediatric Cardiology, Mackay Children Hospital[1] 、 Department of Pediatric Critical Care[2]; Department of Pediatric Cardiology, National Taiwan University Hospital[3]; Department of Pediatric Cardiology, Changhua Chrstian Hospital[4]
許晏騰 [1,3]、曾偉杰 [3]、吳美環 [3]、盧俊維 [3]、吳焜烺 [3,4]、曾愷悌 [2]、邱舜南 [3]
馬偕兒童醫院兒童心臟科 [1]、兒童重症醫學科 [2]; 國立臺灣大學醫學院附設醫院兒童醫院兒童心臟科 [3]; 彰化基督教醫院兒童心臟科 [4]

Background: Reliable data on optimal arrhythmia detection tools in children is limited. This study aimed to compare the arrhythmia detection rates and efficacy of different arrhythmia monitoring modalities in children.
Methods: We conducted a single-center retrospective study. Patient underwent AECG monitoring at the age ＜18 years between December 2022 and January 2025 were recruited. Those with congenital heart disease were excluded. A continuous 7-day Holter ECG device, which also functioned as an event recorder, was used. Data from the first 24 hours was defined as 24-hour Holter ECG results. The primary outcome was arrhythmia detection; the secondary outcome was changes in clinical management attributable to the results.
Results: A total of 447 children (54% female) were included. The average monitoring duration was 4.8 ± 1.7 days. Of the 423 children who had symptoms during the study period, 11.3% had arrhythmias correlated with reported symptoms. The arrhythmia detection rates were 26%, 9%, and 10.7% for those undergoing 7-day Holter ECG, 24-hour Holter ECG, and 7-day event recorder, respectively (P ＜ .001). The proportions of patients with changes in clinical management based on AECG monitoring results were 6.7%, 1.3%, and 2.5% for those undergoing 7-day Holter ECG, 24-hour Holter ECG, and 7-day event recorder monitoring, respectively (P ＜ .001).
Conclusions: Among various AECG modalities, 7-day Holter ECG demonstrated clear advantages in arrhythmia detection and subsequent impact on clinical management. Most arrhythmias were identified by day 5 with the 7-day Holter ECG.

65 **Beyond Symptoms: Rhythm Surveillance in Congenital Heart Disease**
症狀之外：先天性心臟病患者的心律節律監測

Ying-Lun Hsu[1], Wei-Chieh Tseng[2], Yen-Teng Hsu[3], Chun-Wei Lu[2], Mei-Hwan Wu[2], Kun-Lang Wu[4], Wei-Feng Peng[5], Shuenn-Nan Chiu[2]
Department of Pediatrics, College of Medicine, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University, Kaohsiung, Taiwan[1];Department of Pediatrics, National Taiwan University Hospital and Medical College, National Taiwan University, Taiwan[2];Department of Pediatrics, MacKay Memorial Hospital, Taipei, Taiwan[3];Department of Pediatrics, Changhua Christian Hospital, Changhua, Taiwan[4];Department of Pediatrics, National Taiwan University Hospital, Yunlin Branch, Taiwan[5]
許瑛倫 [1]、曾偉杰 [2]、許晏騰 [3]、盧俊維 [2]、吳美環 [2]、吳坤琅 [4]、彭偉峰 [5]、邱舜南 [2]
高雄長庚紀念醫院兒科部 [1];國立台灣大學附設醫院兒科部 [2];台北馬偕紀念醫院兒科部 [3];彰化基督教醫院兒科部 [4];國立台灣大學附設醫院雲林分院兒科部 [5]

Background: Patients with congenital heart disease (CHD) face a lifelong risk of arrhythmias, many of which remain asymptomatic and undetected. This study assessed the diagnostic yield of different monitoring modalities, evaluated symptom–arrhythmia correlation, and determined the clinical value of arrhythmia screening in CHD.
Methods: We retrospectively analyzed 552 CHD patients (66.1% female; median age 34 years) who underwent 7-day patch rhythm monitoring at a tertiary center between December 2022 and January 2025. Patients were grouped as symptomatic or asymptomatic (screening). The patch device also functioned as an event recorder, and the first 24 hours were analyzed as Holter data.
Results: The symptomatic group consisted of 349 patients, and the screening group consisted of 203 patients. Arrhythmias were detected in 64.8% of symptomatic and 68.5% of screening group (P = 0.410), with significant arrhythmias observed in 26.4% and 26.6%, respectively (P = 0.951). In total, the detection rate was highest with 7-day monitoring (66.1%) compared to Holter (46.9%) or event recorder (17.3%). Moderate and severe CHD showed higher arrhythmia detection rates (79.1% and 72.7%) than simple CHD (56.1%). The arrhythmia detection rate rose with age, exceeding 25% after age 30. Symptom–arrhythmia correlation was weak, only significant in the asymptomatic group (P = 0.05). Treatment change rate was 9.4% with 7-day patch monitoring and were comparable between symptomatic and screening groups.
Conclusions: Extended monitoring enhances arrhythmia detection, while symptoms alone are unreliable predictors. These findings support systematic rhythm surveillance in CHD patients to enable timely intervention and improve long-term outcomes.

66 **Innovative Neonatal Resuscitation Training for Cross-Disciplinary Non-Medical Students: An Evaluation of Integrated Team-Based and Simulation-Based Learning**
跨領域非醫學系學生之新生兒急救課程創新：結合團隊導向學習與沉浸式模擬教學之成效分析

Hsiu-Lin Chen[1,2,3]
School of Medicine, College of Medicine, National Sun Yat-sen University, Kaohsiung City, Taiwan [1]、Department of Pediatrics, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan[2]、Department of Respiratory Therapy, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan[3]
陳秀玲 [1,2,3]
國立中山大學醫學院學士後醫學系 [1]、高雄醫學大學附

設醫院小兒科部[2]、高雄醫學大學醫學院呼吸治療學系[3]

Background: Traditional neonatal resuscitation (NR) training often fails to bridge the gap between theory and high-stress clinical scenarios for non-medical students. This study evaluates a multi-modal curriculum combining Team-Based Learning (TBL) and Simulation-Based Learning (SBL) to enhance learning outcomes and reduce anxiety.
Methods: Participants included 29 non-medical undergraduate students (20 males, 9 females) enrolled in this elective neonatal resuscitation course. The curriculum integrated pre-class asynchronous preparation, TBL assessments, and high-fidelity simulation. Stress levels and perceived competence were measured via 5-point Likert scales, with 1 indicating minimal stress for the simulation component. Gender differences were analyzed using the Mann-Whitney U test, and the Friedman test was employed to compare stress levels across the different learning modules (Individual TBL, Team TBL, and SBL).
Results: Overall course satisfaction was exceptionally high (mean: 4.83/5). The Friedman test revealed no significant difference in stress levels among the three learning phases ($p = 0.076$), indicating a balanced psychological load. Perceived stress remained manageable across all sessions (Simulation stress mean: 2.28/5). Statistical analysis indicated that female students reported a significantly higher perceived familiarity with the initial steps of NR following the simulation compared to male students (mean: 4.89 vs. 4.40; $p = 0.031$). Qualitative feedback highlighted that the "hands-on" approach and immersive environment were critical for reducing situational anxiety.
Conclusions: The integrated TBL-SBL model is an effective pedagogical strategy for non-medical students, maintaining low stress while significantly boosting clinical confidence, particularly among female learners. These findings support the implementation of such elective courses to empower the general public with life-saving skills.

67 **A survey of medical students' understanding of generative artificial intelligence and their clinical application needs.**
醫學生對於生成式人工智慧之認知、臨床應用需求調查

Kai-Sheng Hsieh
China Medical University Children's Hospital
謝凱生
中國醫藥大學兒童醫院

Background: 隨著生成式人工智慧（Generative AI, GenAI）技術快速發展，其在臨床輔助、病歷整里、醫學影像及醫病溝通之應用潛力巨大。本研究旨在探討台灣醫學生對 GenAI 的使用行為、認知程度及對於將其納入醫學教育之看法，以作為未來兒科及各專科醫學教育課程規劃之參考。
Methods: 本研究採橫斷性問卷調查，對象為某醫學中心醫學院之五年級見習學生。於 2025 年 12 月 1 日至 2026 年 1 月 5 日透過電子問卷收集資料，內容包含 GenAI 使用頻率、應用場景（如文獻搜尋、病歷撰寫）、對 AI 準確性之信任度及對未來醫療衝擊之觀點。統計分析採用描述性統計及相關性分析。
Results: 本研究共 50 份問卷中回收 48 份有效問卷。結果顯示： 1. 使用普及率： 超過 90% 的醫學生曾使用過 GenAI（以 ChatGPT、Gemini 為主），且約 56.3% 的學生每日使用一次。 2. 應用場景： 97.7% 受訪者曾使用 AI 解釋複雜概念，89.6% 嘗試輔助鑑別診斷。儘管整體幫助程度評分高（平均 4.35/5.0），但信任度相對保守（平均 3.4/5.0）。 3. 認知與態度： 風險意識方面，雖然 85% 了解 AI 幻覺，但僅 25% 會每次查核原始文獻，呈現「高自信、低查證」的現象。 4. 教育需求： 針對中國醫藥大學開發之 MAGI 病歷輔助 AI 系統，僅 20.8% 使用者曾用於病歷撰寫。值得注意，58.3% 支持 AI 應用列為必修，且對臨床思辨能力削弱的憂慮感平均達 3.4/5.0。
Conclusions: 台灣醫學生對於生成式 AI 具有高認知度、高接收度與使用率，然對於資訊安全性仍具戒心。隨著兒科醫療邁入精準化與數位化，醫學教育應即時納入 AI 識讀能力與倫理教育，引導未來醫師能善用工具優化臨床決策，同時保有兒科照護之人文溫度。

68 **Auditing Medical Record Quality with Generative Artificial Intelligence: The Chart AGAI™**
以生成式人工智慧審查病歷品質：搶救病歷 (Chart AGAI)™

Walter Chen, Paul-Jer Chen[1], Jer-Fong Chen[2]
China Medical University Children's Hospital, Taichung, Taiwan; Department of Neurosurgery, China Medical University Hospital, Taichung, Taiwan[1]; Happrobity Studio, Taichung, Taiwan[2]
陳偉德、陳哲圃[1]、陳哲峰[2]
中國醫藥大學兒童醫院; 中國醫藥大學附設醫院神經外科[1]; 樂誠工作室[2]

Background: Medical records are essential indicators of healthcare quality. However, they are frequently criticized for being incomplete, inaccurate, covering only a limited segment of care, and containing nothing about the interpersonal process. During hospital accreditation, medical record documentation often remains a significant area of weakness. Current manual audit methods, which rely on random sampling, are often inefficient and frequently become a mere formality.
Methods: We developed a system to audit the chart quality with Generative Artificial Intelligence (GAI):「搶救病歷」"Chart AGAI™" (Chart Audit by GAI). The auditing guidelines were established based on peer-reviewed Chart CPR (Calibrated Peer Review) rubric and review forms from three medical centers and three regional hospitals in Taiwan. Furthermore, we developed a dedicated program to integrate this system directly into the hospital's Hospital Information System (HIS).
Results: Beginning in September 2025, Chart AGAI™ was implemented in the "Chart-based Group Discussion" course at China Medical University Children's Hospital. Medical students were taught to "evaluate patients and consult AI" as part of their clinical learning. We utilized the system to evaluate 48 medical records submitted by students. The analysis extended beyond grammatical or formatting corrections; the system effectively identified missing content, highlighted inconsistent treatment plans, and provided critical insights into clinical reasoning and patient management.
Conclusions: GAI-powered chart auditing allows for the rapid processing of hundreds of records in a short timeframe. Unlike traditional sampling, this technology

enables a comprehensive review of all records, ensuring objective evaluation and eliminating human bias. Additionally, it provides the capability to correct errors in real-time when necessary. Chart AGAI™ demonstrates significant potential to enhance the quality of medical records, and hopefully improving the overall standard of hospital care.

69 **A Picture Book for Developmental Assessment: Where Shared Reading Meets Developmental screening**
發展評估圖畫書~親子共讀與發展篩檢的黃金交會

Shu-Chuan Wu[1], Tien-Wei Publishing Company[2]
Department of Pediatric, Lotung Poh-Ai Hospital
吳淑娟[1]、小魯文化[2]
羅東博愛醫院兒科

Background: 0-3 歲是嬰幼兒大腦發展最關鍵的黃金期，語言認知、情緒與人際互動的連結飛快成長，而此期間也正是幼兒專責醫師與嬰幼兒家庭緊密接觸的階段，幼專醫師成為最能協助家長掌握孩子發展關鍵期的重要角色。然而，若嬰幼兒出現語言遲緩、注意力不足、情緒和親子互動困擾等問題，傳統兒科醫療卻缺乏預防性與家庭支持的介入方式。所幸，近年越來越多研究顯示：「親子共讀」是一種兼具情感與實證基礎的介入策略，能有效提供孩子大腦發展所需的必要元素。自 2015 年起，美國兒科醫師 Dr. Hutton 團隊結合兒童發展臨床實務與腦神經科學造影 (fMRI)研究，證實若能盡早給學齡前幼兒豐富的共讀環境，孩子大腦中掌管語言處理的區域，情感調控中樞，與前額葉皮質（負責注意力與執行功能）活性更高。這些研究說明，親子共讀不再只是提供腦部語言認知發展的益處，還是影響孩童心理健康發展的重要元素，可減少未來身心不良健康帶來的社會和醫療成本。若能透過國家公共衛生，兒科醫療，以及社會資源，合力一起引導家長儘早開始親子共讀，親子共讀政策可以成為兒童身心健康福祉的二級和三級預防，為個人和社會帶來巨大的好處。故推動共讀是醫師提供家長促進幼兒發展最有力量的支持之一。然兒科臨床工作繁忙，若能開發出一本結合推廣共讀、促進發展與發展篩檢的圖畫書，讓幼兒專責醫師能在不增加額外醫療流程的情況下，提供家長促進幼兒發展最有力量的衛教指引。

Methods: 美國教育學者很早就開發「對話式閱讀 (Dialogic Reading, DR)」策略，提供幼兒園老師輔導需要早期療育，包括語言認知社會情緒發展落後的幼童。之後更是建議嬰幼兒照顧者都可以用對話式閱讀策略，作為日常促進幼童發展的語言互動方式。近年腦科學研究也證實以對話式閱讀策略進行親子共讀，幼兒腦部中語言理解能力、閱讀能力與社會情緒發展中樞活性較好，符合兒童早期發展所需。為了將親子共讀的好處落實於診間，2019 年 Hutton 團隊設計了《The Reading House》（TRH）工具書。這本小書結合對話式閱讀策略、發展觀察與臨床篩檢，讓醫師能在不額外增加流程的情況下，觀察 3～4 歲幼兒的語言、注意力與社交互動，成為診間裡實用又友善的評估工具。作者於 2007 年起以兒科醫師角色，在兒科醫療中推廣親子共讀。2024 年起與坊間兒童出版社合作，嘗試編製一本結合親子共讀和兒童發展篩檢的圖畫，提供台灣幼兒專責醫師於臨床工作時方便使用。

Results: 此發展評估圖畫書《小寶貝，今天要做什麼》特色: a. 生活化: 圖畫書以嬰幼兒一日生活情境為主軸，圖文內容貼近幼兒經驗，文字簡潔且富節奏感。每頁文字附開放式提問，引導家長以「對話式閱讀」與孩子互動，可促進認知語言和社會發展。同時有小摺頁設計，能促進幼兒細動作發展，並提高共讀樂趣。b. 實用性: 作者專為幼專醫師編寫指導手冊，說明在臨床和幼兒互動時，如何運用對話式閱讀策略和幼兒互動，同時又可依年齡來評估嬰幼兒的語言認知和社會發展。醫師可先行熟悉指導手冊裡「對話式閱讀策略」的示範句型，如此在門診與幼兒互動時，透過問答中觀察和評估發展，也同時向家長示範何謂對話式閱讀，達到主動協助促進幼兒認知語言及社會發展的功效。當醫師向家長說明照護衛教時，孩子難免坐不住時將此圖畫書拿給幼兒翻閱，以轉移焦躁不安的情緒，減少家長拿出 3C 出來安撫孩子的機率。c. 方便性: 0-3 歲皆可以此本圖畫書為評估工具，醫師不須視幼兒不同年齡準備好幾本圖畫書在門診。評估的發展年齡搭配預防接種時程（6、12、15、18、27 個月），發展評估題項則結合《兒童健康手冊》及 PeDS 中的語言認知與社會發展指標項目，皆是兒科醫師熟悉的幼兒發展項目。(4-6 歲也適合)

Conclusions: 相較現行的發展篩檢工具，此發展評估圖畫書不只可做為發展篩檢工具，更是一本製作優良，符合 0-3 歲幼兒社會生活經驗和認知發展的圖畫書。醫師可於臨床工作中，視看診以及幼兒發展情況，以此圖畫書和孩子互動，向家長說明語言互動的重要性，方便醫師同步推廣親子共讀和促進兒童發展，使語言與情感的互動在診間自然發生，也有助激發家長進行親子共讀的動機，減少幼兒使用 3C 的時間。期待台灣每一位兒科醫師，手中不再只有聽診器，還有這本能啟動幼兒家庭親子共讀的小書，將兒科醫師推廣親子共讀的衛教，成為親子間語言與愛的橋梁。

70 **Hair Toxicology Testing in Children and Adolescents with Suspected Environmental Drug Exposure: Experience from a Medical Center in Southern Taiwan**
應用毛髮毒物檢測於疑似毒品環境暴露兒少之臨床經驗：以某南部醫學中心為例

Yi-Ching Lin[1,2,3], Shu-Huei Jian[1], Li-Ping Tseng[1], Yi-Ching Liu[2,3], Yen-Hsien Wu[2,3], Yi-Cheng Wang[2,3], Mei-Hui Chuang[4], Jong-Hau Hsu[2,3]
Department of Laboratory Medicine, Kaohsiung Medical University Hospital[1]; Department of Pediatrics, Kaohsiung Medical University Hospital[2]; Child Protection Regional Medical Integration Center, Kaohsiung Medical University

Hospital[3]; Domestic Violence and Sexual Assault Prevention Center, Social Affairs Bureau, Kaohsiung City Government, Kaohsiung, Taiwan.[4]
林宜靜 [1,2,3]、簡淑惠 [1]、曾麗憑 [1]、劉怡慶 [2,3]、吳彥賢 [2,3]、王藝錚 [2,3]、莊美慧 [4]、徐仲豪 [2,3]
高雄醫學大學附設中和紀念醫院檢驗醫學部 [1]、小兒科部 [2]; 高雄醫學大學附設中和紀念醫院兒少保護區域醫療整合中心 [3]; 高雄市政府社會局家庭暴力及性侵害防治中心 [4]

Background: 非法藥物之環境性暴露為威脅兒童健康的重要公共衛生議題。當家長或主要照護者存在藥物濫用情形時，嬰幼兒因長時間處於家庭環境中，可能透過二手煙霧吸入、皮膚接觸、母乳餵養或意外攝入等途徑而暴露於非法藥物。相較於尿液檢體代謝快速、僅能反映短期暴露情形，毛髮檢體具有非侵入性採樣且可回溯數週至數月暴露歷程之優勢，因而成為評估兒童與青少年非法藥物環境暴露風險的重要科學工具。
Methods: 本研究採回溯性分析，納入 2024 年 11 月至 2025 年 11 月期間，高雄醫學大學附設醫院所執行之毛髮毒物檢測資料。檢測方法採用液相層析串聯質譜法（LC-MS/MS），分析項目涵蓋傳統濫用藥物，以及國內常見之新興影響精神物質，包括卡西酮類與苯二氮平類等，共計 32 項藥物。為提升微量藥物及環境性暴露之偵測靈敏度，本研究以定量下限（lower limit of quantification, LLOQ）作為藥物檢出之判定標準。依據儀器效能與方法學驗證結果，各藥物之定量下限介於 10 至 200 pg/mg 之間。
Results: 研究期間共納入 111 例毛髮檢測樣本，其中兒童與青少年 77 例（69%），成人 34 例（31%）。成人檢測之主要目的為評估家長或主要照護者之用藥狀況，作為兒少非法藥物環境暴露風險評估與後續安置決策之參考。兒少樣本之平均年齡為 4.4 歲（中位數 4 歲，範圍 0–15 歲），女性占 58%。在 77 名疑似處於藥物暴露環境之兒少個案中，共 62 名檢出至少一項藥物，整體陽性率為 81%。檢出藥物以安非他命類、愷他命及鴉片類為主。其中，52%為單一藥物暴露，48%為多重藥物暴露（兩項以上）。
Conclusions: 毛髮毒物分析可有效評估兒童與青少年之長期或環境性藥物暴露，在兒少毒品危害評估中具備重要的臨床與公共衛生價值。其檢測結果可作為兒童保護相關風險評估與後續安置決策之客觀科學依據，協助相關單位辨識高風險環境並制定適切之保護措施。

71 **Establishment of a Hospital-Based Pediatric Residential Long-Term Care Facility Integrating Post-Acute Care: Early Experience and Outcomes**
醫院附設兒童住宿式長照機構結合急性後期照護之建置：初期經驗與成果

Chi-Nan Huang, Chung-Hao Wang, Fang-Yuan Chang, Pei-Wei Wang, Tsung-Zu Wu, Li-Jung Fang
Department of Pediatrics, Taipei City Hospital Heping-Fuyou Branch
黃啟南、王中豪、張芳瑗、王培瑋、吳宗儒、方麗容
臺北市立聯合醫院和平婦幼院區小兒科

Background: In Taiwan, approximately 56,223 children under 18 have disabilities, yet residential long-term care services for children with medical needs remain severely limited. Most existing facilities primarily serve the elderly, leaving families without adequate respite and transitional care support. To address this gap, Taipei City Hospital established "Wings for Children Residential Care Home," integrating pediatric post-acute care (PAC) concepts into a residential long-term care model.
Methods: The ward was renovated into a 1,196 m² facility with 29 beds. Three service models were implemented: (1) respite care for children with disabilities, (2) protective placement for children with special medical needs from social welfare referral, and (3) pediatric PAC providing intensive rehabilitation and family training. A multidisciplinary team including pediatricians, nurses, care workers, physical and occupational therapists, social workers, pharmacists, and dietitians was assembled. Trial operation commenced on July 7, 2025.
Results: During the initial five months, eight children aged 2 months to 7 years were admitted. Underlying conditions included prematurity with complications, complex congenital heart disease, abusive head trauma, child abuse, and child neglect with developmental delay. Notable outcomes included successful oral feeding of a post-cardiac surgery patient with long dependence on nasogastric tube feeding, speech development beyond expectations of an abuse victim within one month, and remarkable social-emotional improvement through peer interaction of a neglected child. The experience also highlighted the need for comprehensive parental education.
Conclusions: This hospital-based pediatric residential care model integrating PAC demonstrates feasibility in bridging the gap between acute hospitalization and home care. Early outcomes suggest that combining medical care, rehabilitation, and family empowerment effectively supports medically complex children and serves as a safety net for those requiring protective placement. Future directions include advocating for enhanced pediatric long-term care reimbursement and promoting similar facility development nationwide.

72 **Who Cares for Children When Pediatricians Are Scarce? Workforce Pipeline Decline, Geographic Inequities, and the Growing Role of Advanced Practice Providers in Maryland**
兒科醫師不足時，誰來照護孩子？美國因應兒科住院醫師招收困難、馬里蘭州因應城鄉差距之作為與進階醫療執業人員之角色

Jocelyn Davis, Shao-Hsuan Hsia, Catherine Campbell, Ivanna Harshman
Department of Physician Assistant, University of Maryland Eastern Shore
喬絲琳戴維斯、夏紹軒、凱瑟琳坎貝兒、伊凡娜哈什曼
馬里蘭大學東岸分校助理醫師學系

Background: Pediatric primary care in the United States faces two major challenges in the 21st century: declining interest among U.S. MD graduates and pronounced geographic maldistribution of pediatricians. Lower relative compensation and an aging physician workforce have exacerbated shortages, particularly in rural areas. Nurse practitioners (NPs) and physician assistants (PAs) are licensed advanced practice clinicians who deliver care within team-based models under state and institutional regulation. Both professions have expanded substantially and play an increasing role in pediatric primary care.

Methods: We conducted a secondary analysis of publicly available residency match data, federal and professional workforce datasets, and county-level demographic files. Trends in pediatrics residency fill composition were analyzed by applicant type. Pediatrician supply was measured using children-per-pediatrician ratios, with emphasis on urban–rural variation. NP and PA contributions were evaluated through workforce growth and distribution patterns.
Results: From 2000 to 2025, the proportion of pediatrics residency positions filled by U.S. MD graduates declined from 78.9% to 49.4%, while overall fill rates were increasingly maintained by osteopathic (3.82 to 21.4%, 2000 to 2025) and international medical graduates (12.2 to 28.1%, 2000 to 2025). Marked geographic disparities were observed in Maryland, with children-per-pediatrician ratios differing by as much as twelve-fold between metropolitan (657 Montgomery) and rural (7,923 Caroline) counties. Health Professional Shortage Area (HPSA) data reveals severe rural disparities, with PA integration most pronounced in regions with the highest child-to-pediatrician ratios. Outcome studies suggest PA-integrated models maintain equivalent quality metrics for common acute and chronic conditions.
Conclusions: Shifts in the pediatric physician pipeline and persistent geographic disparities threaten equitable access to pediatric care. The growing role of NPs and PAs appears to have partially mitigated pediatrician shortages, underscoring the importance of integrated workforce planning to sustain pediatric primary care capacity.

73 **Cell-Specific Effects of IRS-1 Signaling: Endothelial IRS-1 Aggravates Neurovascular Damage in Neonatal Hypoxic–Ischemic Brain Injury**
IRS-1 訊號傳導之細胞特異性效應：內皮細胞 IRS-1 加劇新生兒缺氧缺血性腦傷中的神經血管損傷

Yi-Fang Tu[1], Min-I Huang [2], Si-Tse Jiang[3], Chao-Ching Huan [1]
Department of Pediatrics, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan[1]; Institute of Clinical Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan[2]; National Laboratory Animal Center, National Applied Research Laboratories, Taipei, Taiwan[3]
杜伊芳 [1]、黃名儀 [2]、蔣思澈 [3]、黃朝慶 [1]
國立成功大學醫學院附設醫院 小兒科，醫學院，國立成功大學，臺南，臺灣 [1]; 國立成功大學醫學院 臨床醫學研究所，臺南，臺灣 [2]; 國家實驗動物中心，國家應用研究實驗室，臺北，臺灣 [3]

Background: Perinatal hypoxic–ischemic encephalopathy (HIE) is a major cause of neonatal mortality and long-term neurodevelopmental impairment. Despite therapeutic hypothermia, over 40% of affected neonates suffer death or disability. Hypoxic–ischemic injury disrupts both neurons and endothelial cells within the neurovascular unit, indicating that effective neuroprotection must preserve both neuronal survival and neurovascular integrity.
Methods: Our previous studies demonstrated that neuron-specific IRS-1 overexpression is neuroprotective. To define the cell-specific role of IRS-1 in vascular endothelium, we generated an endothelium-specific IRS-1 transgenic rat model. Neonatal rats were subjected to HI injury, followed by assessment of the integrity of neurovascular unit.
Results: Endothelium-specific IRS-1 overexpression significantly exacerbated HI-induced brain injury, as shown by increased infarct volume, reduced tight junction protein expression, elevated MMP-9 levels, and disruption of the blood–brain barrier. IRS-1 transgenic pups demonstrated early upregulation of VCAM-1 at 3 hours and increased ICAM-1 expression at 24 hours after HI, accompanied by enhanced microglial activation and neutrophil infiltration. In vitro, IRS-1 overexpression in human brain microvascular endothelial cells increased VCAM-1 and ICAM-1 expression both at baseline and following OGD. Importantly, antibody-mediated blockade of VCAM-1 and ICAM-1 attenuated neuronal apoptosis, reduced MMP-9 production, and suppressed neuroinflammation in vivo.
Conclusions: Endothelial-specific IRS-1 overexpression enhances adhesion molecule expression and amplifies neuroinflammatory responses, resulting in aggravated neurovascular damage after neonatal HI. These findings reveal a detrimental role of endothelial IRS-1 signaling in contrast to its neuroprotective effects in neurons, underscoring the importance of cell type-specific therapeutic targeting in neonatal HIE.

74 **Exosomal microRNA Signatures in HIE as Early Biomarkers and Therapeutic Targets**
外泌體中的 miRNA 特徵作為新生兒缺氧缺血性腦病變的早期生物標記與治療標靶

Yi-Fang Tu[1], Jia-Shing Chen[2], Chi-Wu Chiang[3]
Department of Pediatrics, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan[1]; School of Medicine for International Students, I-Shou University, Kaohsiung, Taiwan[2]; Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan[3]
杜伊芳 [1]、陳嘉興 [2]、蔣輯武 [3]
國立成功大學醫學院附設醫院小兒科，臺南，臺灣 [1]; 義守大學國際學生醫學系，高雄，臺灣 [2]; 國立成功大學醫學院分子醫學研究所，臺南，臺灣 [3]

Background: Neonatal hypoxic–ischemic encephalopathy (HIE) is a major cause of neonatal mortality and long-term neurodevelopmental impairment. Therapeutic hypothermia is currently the most effective treatment; however, its efficacy is constrained by a narrow therapeutic window of approximately 6 hours after birth. Reliable early biomarkers that reflect brain injury severity are urgently needed to guide timely intervention. Moreover, despite hypothermia, over 40% of neonates with moderate to severe HIE still suffer death or significant neurological disability, highlighting the need for adjunctive therapeutic strategies. Brain-derived exosomes that cross the blood–brain barrier and circulate in peripheral blood offer a promising “liquid brain biopsy.” These exosomes carry microRNAs (miRNAs), which are key regulators of cellular and pathological processes. This study investigated whether exosomal miRNAs could serve as biomarkers for HIE severity and explored their potential neuroprotective effects.
Methods: Exosomes were isolated from peripheral blood samples of neonates with HIE and characterized using flow cytometry for exosomal (CD9, CD63) and neuronal markers. miRNA profiles were analyzed using RNA sequencing. Functional effects of selected miRNAs and engineered miRNA-enriched exosomes were evaluated in

neurons subjected to oxygen–glucose deprivation (OGD).
Results: Exosomes were isolated from 12 neonates with HIE. miRNA profiling revealed a distinct exosomal miRNA signature differentiating mild from moderate–severe HIE, with most differentially expressed miRNAs downregulated in moderate–severe cases. Inhibitors of several top-ranked miRNAs demonstrated neuroprotective effects against OGD-induced neuronal injury. Engineered exosomes enriched with these anti-miRNAs reproduced similar neuroprotective effects.
Conclusions: Exosomal miRNA signatures detected within 6 hours after birth may serve as early biomarkers to distinguish HIE severity. Selected miRNAs also represent promising candidates for adjunctive therapeutic development in neonatal HIE.

75 **Exploring the Role of Panax notoginseng Saponins in Modulating Foam Cell Phenotypes Derived from Distinct Macrophage Subtypes**
三七皂苷對泡沫化巨噬細胞表型轉化及去泡沫化潛力之探討

Sheng-Shing Lin[1], Syuan-Yu Hong[1], Yu-Tzu Chang[1], I-Ching Chou[1], Kai-Sheng Hsieh[2]
Department of Pediatric Neurology, China Medical University Children's Hospital, China Medical University, Taichung, Taiwan[1]; Department HospiDepartment of Pediatric Cardiology, China Medical University Children's Hospital, Taichung, Taiwan[2]
林聖興[1]、洪宣羽[1]、張鈺孜[1]、周宜卿[1]、謝凱生[2]
中國醫藥大學兒童醫院小兒神經科[1]; 中國醫藥大學兒童醫院小兒心臟科[2]

Background: Atherosclerosis is a major cause of cardiovascular diseases, in which foam macrophages contribute to plaque formation and instability. Foam cells arise from monocyte-derived macrophages after excessive uptake of oxidized low-density lipoprotein (oxLDL), leading to lipid accumulation and chronic inflammation. Panax notoginseng saponins (PNS) possess anti-inflammatory, antioxidant, and lipid-lowering properties, but their ability to reprogram macrophage phenotype after foam cell formation remains unclear.
Methods: In vitro models were established using THP-1–derived macrophages and mouse bone marrow–derived macrophages (BMDMs). Foam cell formation was induced in THP-1–derived macrophages by oxLDL. Macrophage polarization was achieved using LPS/IFN-γ for M1 and IL-4/IL-13 for M2 conditions, followed by PNS treatment. Lipid accumulation was assessed by Oil Red O staining. Expression of cholesterol transport–related genes (ABCA1, ABCG1, CD36) was analyzed by qPCR and Western blot. Cytokine levels (IL-1β, TNF-α, IL-10) were measured by ELISA, and M1/M2 markers were evaluated by flow cytometry.
Results: Stable and reproducible macrophage polarization and foam cell models were successfully established. BMDMs differentiated with GM-CSF showed clear separation into $CD11b^{+}CD38^{+}$ M1 and $CD11b^{+}CD206^{+}$ M2 populations. In THP-1–derived macrophages, oxLDL treatment induced significant foam cell formation, with markedly increased intracellular lipid accumulation detected by Oil Red O staining and OD520 measurement.
Conclusions: This study established robust in vitro platforms for macrophage polarization and foam cell formation, enabling systematic investigation of the immunometabolic effects of PNS. These models provide a foundation for evaluating the therapeutic potential of PNS in modulating foam macrophage behavior and atherosclerosis progression.

76 **Developing phenotypic and polygenic scores to improve diagnosis of ADHD and related comorbidities in the Han Taiwanese population**
建構表型與多基因評分系統以改善台灣漢人注意力不足過動症及其相關共病之診斷

Shau-Wei Yang[1], Yu-Tzu Chang[1, 2], Ying-Ju Lin[3, 4], Ting-Yuan Liu[5], Sheng-Shing Lin[1, 2], Syuan-Yu Hong[1, 6], Chien-Heng Lin[1, 7, 8], I-Ching Chou*[1, 4], Fuu-Jen Tsai**[3, 4, 5, 9]
Department of Pediatric Neurology, China Medical University Children's Hospital, Taichung, 40447, Taiwan[1]; School of Post Baccalaureate Chinese Medicine, China Medical University, Taichung, 40447, Taiwan[2]; Genetic Center, Department of Medical Research, China Medical University Hospital, Taichung, 40447, Taiwan[3]; School of Chinese Medicine, China Medical University, Taichung, 40447, Taiwan[4]; Department of Medical Research, China Medical University Hospital, Taichung, 40447, Taiwan[5]; Department of Medicine, School of Medicine, China Medical University, Taichung, 40447, Taiwan[6]; Department of Pediatric Pulmonology, China Medical University Children's Hospital, Taichung, 40447, Taiwan[7]; Department of Biomedical Imaging and Radiological Science, College of Medicine, China Medial University, Taichung, 40447, Taiwan[8]; Department of Medical Genetics, Pediatric Endocrinology and Metabolism, China Medical University Children's Hospital, Taichung, 40447, Taiwan[9]
楊紹葳[1]、張鈺孜[1, 2]、林應如[3, 4]、劉鼎元[5]、林聖興[1, 2]、洪宣羽[1, 6]、林建亨[1, 7, 8]、周宜卿*[1, 4]、蔡輔仁**[3, 4, 5, 9]
中國醫藥大學兒童醫院兒童神經科[1]；中國醫藥大學中醫學院學士後中醫學系[2]；中國醫藥大學附設醫院基因醫學部[3]；中國醫藥大學中醫學院中醫學系[4]；中國醫藥大學醫學研究部[5]；中國醫藥大學醫學院醫學系[6]；中國醫藥大學兒童醫院兒童胸腔科[7]；中國醫藥大學生物醫學影像暨放射科學學系[8]；中國醫藥大學兒童醫院醫學遺傳暨兒童新陳代謝內分泌科[9]

Background: Given the underexplored genetic architecture and associated health outcomes of attention-deficit/hyperactivity disorder (ADHD) among Han Taiwanese populations, this study utilized electronic health records (EHR) and genome-wide association studies (GWAS) to identify genetic loci, health conditions, and to establish phenotypic and polygenic predictors for clinical diagnosis.
Methods: We utilized electronic health records (EHR) to identify conditions associated with ADHD and developed disease phenotype risk scores (Disease PheRS) validated in an independent clinical cohort. Additionally, a genome-wide association study (GWAS) was performed to establish ADHD polygenic risk scores (PRS) for diagnostic prediction in the Han Taiwanese population.
Results: We included 664 ADHD patients and 25,771 controls from the CMUH database, finding that ADHD patients were younger, predominantly male, had more

comorbidities, and showed higher usage of anti-anxiety medications. An ADHD status-PheWAS revealed multiple comorbidities of mental disorders and neurological conditions, highlighting ADHD's complex clinical presentation. An ADHD PRS-PheWAS showed that higher polygenic risk for ADHD was strongly linked to ADHD diagnosis itself and nominally associated with pervasive developmental disorders (PDDs). Finally, clinically validated ADHD and PDDs cases displayed elevated phenotype risk scores (PheRS) and polygenic risk scores (PRS). Integrating disease status-PheRS with PRS enhanced the accuracy of ADHD and PDDs clinical diagnosis predictions in the Han Taiwanese population.
Conclusions: These findings indicate that combining phenotypic (PheRS) and genetic (PRS) predictors derived from EHR and GWAS data effectively captures their value as quantitative tools for clustering ADHD and related comorbidities, thereby enhancing clinical prediction.

77 **Cannabidiol for TSC-Refractory Epilepsy- Cases Series Experience**
大麻二酚 (Cannabidiol)於結節硬化症頑固型癲癇之治療經驗

Chieh-Liang Ho[1], Wang- Xing An[1,2], Jeng-Dau Tsai[1,2]
Department of Pediatrics, Chung Shan Medical University Hospital[1]; School of Medicine, Chung Shan Medical University[2]
何介良[1]、王杏安[1,2]、蔡政道[1,2]
中山醫學大學附設醫院兒童部[1]; 中山醫學大學醫學系[2]

Background: Tuberous sclerosis complex (TSC) is a genetic neurocutaneous disorder frequently complicated by treatment-resistant epilepsy (TSC-RE). Despite advances in antiseizure medications and mTOR inhibitors, seizure control remains suboptimal in a substantial proportion of patients. Cannabidiol (CBD) has emerged as a potential adjunctive therapy for refractory epilepsy, including TSC-associated seizures. This study reports the clinical experience of CBD oil use in patients with TSC-RE at Chung Shan Medical University Hospital (CSMUH).
Methods: This retrospective observational study included 8 patients diagnosed with TSC and refractory epilepsy who received CBD oil as adjunctive therapy in clinical practice of TSC integrated clinics. Data were collected from medical records, including demographic characteristics, seizure types, prior treatments, CBD dosage, treatment duration, seizure frequency, and adverse events. Seizure outcomes were compared before and after CBD initiation based on caregiver and clinician reports.
Results: CBD oil was generally well tolerated in patients with TSC-RE. Most patients (7/8) demonstrated a reduction in seizure frequency following CBD treatment, with some achieving clinically meaningful improvement ($p < 0.05$). Adverse effects were mostly mild to moderate and included somnolence and gastrointestinal discomfort. No severe CBD-related complications were observed during the follow-up period.
Conclusions: Our clinical experience suggests that CBD oil may be a beneficial and safe adjunctive treatment for patients with TSC-associated refractory epilepsy. Although the findings are limited by the retrospective design and small sample size, they are consistent with previously reported evidence supporting CBD efficacy in TSC-RE. Prospective controlled studies are warranted to better define optimal dosing, long-term safety, and predictors of treatment response.

78 **Clinical Observations on the Use of Traditional Chinese Medicine for Brain Injury in Children: A Case Series Study**
中醫治療小兒腦損傷之臨床觀察：病例系列研究

Po-Wen Wang[1], Wan-Yu Lai[1,2], Yu-Tzu Chang[2,3]
Division of Chinese Medicine Pediatrics, Department of Chinese Medicine, China Medical University Hospital, Taichung, Taiwan[1]; School of Chinese Medicine, China Medical University, Taichung, Taiwan[2]; Division of Pediatric Neurology, China Medical University Children's Hospital, Taichung, Taiwan[3]
王柏文[1]、賴琬郁[1,2]、張鈺孜[2,3]
中國醫藥大學附設醫院中醫部中醫兒科[1];中國醫藥大學中醫學院[2];中國醫藥大學兒童醫院兒童神經科[3]

Background: Pediatric brain injury often results in impaired consciousness and motor disability, requiring multidisciplinary management. However, evidence regarding traditional Chinese medicine (TCM) as an adjunctive therapy remains limited. This study aims to evaluate the effect of TCM on neurological outcomes in children with brain injury.
Methods: We retrospectively analyzed 19 pediatric patients with brain injury treated at a university children's hospital. All patients received TCM interventions, including acupuncture and herbal medicine. Patients were categorized into three etiological groups: encephalitis ($n = 6$), HIE ($n = 5$), and intracranial hemorrhage ($n = 8$). Neurological function was assessed using the Glasgow Coma Scale (GCS) and muscle power scores before and one month after TCM treatment.
Results: The average age of the encephalitis group was 7.8±3.1 years old, and the average hospitalization stay was 35±21 days. The average age of the HIE group was 0.9±1.8 years old, and the average hospitalization stay was 33.6±7.1 days. In addition, the average age of the intracranial hemorrhage group was 7.4±5.0 years old, and the average hospitalization stay was 33±20 days. Following one month of TCM treatment, GCS scores improved significantly (median: from 10 to 15; $p = 0.0035$). Furthermore, muscle power also significantly improved after one month of TCM treatment (median: from 12.5 to 20; $p = 0.002$).
Conclusions: This preliminary study demonstrates that integrative TCM interventions are associated with significant improvements in consciousness and motor function in children with brain injury.

79 **Experience of Using Taiwan developmental screening tool "Pediatric Development Screening (PeDS)" in a tertiary center in Vietnam**
使用台灣兒童發展篩檢量表（PESS）於越南醫院之經驗

Xiao-Ru Ji, Kun-Long Hung
Department of Pediatrics, Fu-Jen Catholic University Hospital
紀孝儒、洪焜隆
輔仁大學附設醫院兒科部

Background: Developmental delay is a growing concern in current society. The use of Taiwan Pediatric Development

Screening (PeDS) for early detection of developmental delay for children has been conducted in Taiwan since 2024 July. The reported rate of developmental delay requiring referral to child rehabilitation in Taiwan was around 6~10%. However, limited data were obtained in developing countries. Our aim is to investigate the rate of developmental delay in developing countries, and the specific rate of developmental delay in each categories.
Methods: Eligible children were brought to University Medical Shing Mark Hospital for examination of developmental delay, a province near Ho Chi Ming city. The name, birth date, gender were collected. Two pediatric neurologist examined four aspects of development milestones, including motor, fine motor, speech and social aspects in Pediatric Development Screening (PeDS) .After the examination, we also gave sheets of Taipei Preschooler Developmental Checklist 2nd version (TaipeiII), Vietnamese version for double confirmation.
Results: Total 10 children were collected with their parents' accompanying. For the 10 children examine, we had found about 40% (n=4) with developmental delay requiring further early rehabilitation. For those with developmental delay, each aspects were as belowe: 50% with speech delay, 25% with social delay, and 25% with global delay. One with global delay with abnormal face and Syndactyly, suspected syndromes of developmental delay, and further referral was suggested.
Conclusions: Developmental delay is a growing concern in developed countries, such as in Taiwan, but there is little emphasis of the importance of early rehabilitation in developing countries. Our goal found a greater proportion of developmental ddelay in Vietnam, and further cooperation for raising concerns is a big issue for the medical department.

80 **Exploring the Relationship Between Father Involvement and Infant-Directed Speech Through Infant Auditory Event-Related Potentials**
以嬰幼兒聽覺事件相關電位探討父職參與度與嬰兒導向式語言之關係研究

Fong-Yu Chen[1], Shih-Ming Weng[2,3]
Kuang Ching Clinic[1]; Department of Pediatrics, Wan Fang Hospital, Taipei Medical University[2]; Department of Speech Language Pathology and Audiology, National Taipei University of Nursing and Health Sciences[3]
陳鳳妤[1]、翁仕明[2,3]
光晴復健科診所[1]; 臺北市立萬芳醫院小兒神經科[2]; 臺北護理健康大學語言治療與聽力學系所[3]

Background: Infant-directed speech (IDS) is one of the parental communication modes specific in early stages of infant language development. IDS has been proved to draw the attention of infants and to facilitate language acquisition in daily interactions and conversations. Previous studies suggested positive correlations between the amount of oral language provided by parents and later language development of infants. Physiological measurements also revealed solid relationships between IDS usage and adequate responses during neurodevelopment.
Methods: We recruited 10 healthy infants aged 6 to 12 months, along with their fathers for our research. One unfamiliar male participant has also been recruited in our study. The infant participants listened to stimuli while in an asleep or awake state, applying the oddball paradigm test. The stimuli were presented in three types of sounds: standard sounds, fathers with IDS, and unfamiliar males with IDS. All three types of sounds generated randomly in an alternating sequence. Additionally, fathers filled questionnaires designed for father-infant interaction and language interaction, which were further co-analyzed with individually auditory event-related potential data.
Results: Our study revealed that infants aged 6–12 months could distinguish their father's voices from that of an unfamiliar male, showing shorter N2 and P3 latencies in the case of identifying words from their fathers. Paternal involvement was found moderately correlating with N2 and P3 parameters, suggesting its role in development of early voice discrimination and attention. Paternal use of IDS also proved to have moderate correlations with MMN and P3 parameters, indicating that IDS acoustic features may have influences in early infantile neurodevelopment.
Conclusions: Our findings support the advantages of parent-child interaction and shared reading in clinical practice, even in infants aged only 6–12 months. Additionaly, paternal involvement plays an important role in child cognitive development.

81 **Enhancing Early Language Development in Healthcare: Interactive Reading Intervention vs. Educational Reading Promotion**
共讀推廣方式與幼兒語言發展：互動式與教育式策略之比較

Chung-Hao Wang, Pei-Wei Wang, Li-Jung Fang
Department of Pediatrics, Heping Fuyou Branch, Taipei City Hospital, Taipei, Taiwan
王中豪、王培瑋、方麗容
臺北市立聯合醫院和平婦幼院區小兒科

Background: Shared reading in pediatric healthcare settings can support early language development, but the comparative effectiveness of different delivery approaches remains unclear. This exploratory study examined whether an Interactive Reading Intervention (IRI), which includes parent-led dialogic reading practice, yields greater language gains than an Educational Reading Promotion (ERP) focusing on provider-led literacy education without structured parent–child practice.
Methods: A quasi-experimental study was conducted at Taipei City Hospital in 2025. Forty parent–child dyads (children aged 3–6 years) randomized into IRI (n = 20) or ERP (n = 20). Assessments included the Peabody Picture Vocabulary Test–Revised (PPVT-R), Preschool Language Scale (PLS-R), and Clinical Language Assessment of Mandarin Preschoolers (CLAMP) at baseline (T0) and post-intervention (T1). Paired t-tests evaluated within-group changes. ANCOVA controlling for age, parental education, and household income compared between-group improvements.
Results: Both groups demonstrated significant improvements in receptive vocabulary and overall language scores from T0 to T1 (all $p < .05$). After adjustment, IRI produced greater gains in CLAMP full-scale scores than ERP (adjusted mean difference = 4.40; 95% CI = 0.20–8.60; $p = .041$), corresponding to a moderate effect size (Cohen's $d = 0.67$). No significant between-group differences were observed for PPVT-R or PLS-R.
Conclusions: Both healthcare-based shared reading approaches improved language skills in Taiwanese

preschoolers, but interactive, parent-mediated practice showed relatively stronger effects on higher-level expressive and semantic skills. These findings provide preliminary, hypothesis-generating evidence to inform clinical literacy promotion strategies.

82 **Analysis and therapy of renal tubular dysgenesis-causing AGT mutation conditional knock-out mice**
造成腎小管發育不全之 AGT 基因突變條件式剔除小鼠之分析與治療

Min-Hua Tseng[1], Shih-Hua Lin[2]
Division of Nephrology, Department of Pediatrics, Chang Gung Memorial Hospital and Chang Gung University, Taoyuan, Taiwan[1]; Division of Nephrology, Department of Medicine, Tri-Service General Hospital, Taipei, National Defense Medical University, Taiwan[2]
曾敏華 [1]、林石化 [2]
林口長庚紀念醫院兒童內科部腎臟科 [1]; 三軍總醫院內科部腎臟科 [2]

Background: This study assessed dexamethasone as rescue therapy for fatal autosomal recessive renal tubular dysgenesis (ARRTD) due to AGT mutation, with conditional knockout mice enabling targeted investigation of AGT's role and precise evaluation of treatment.
Methods: A novel homozygous AGTE3-4del/E3-4del conditional knock-out mouse model, bearing a 2870 bp deletion encompassing exons 3 and 4 of AGT, was used to evaluate the in vivo therapeutic impact of prenatal dexamethasone administration.
Results: AGTE3-4del/E3-4del mice exhibited classic features of ARRTD, including hypotension, elevated serum creatinine and urea, and high postnatal mortality, reduced body weight, electrolyte disturbances, and impaired urine concentration. Histological analysis revealed defective proximal tubular development. Molecular studies demonstrated almost absent hepatic AGT mRNA and protein expression, accompanied by decreased circulating AGT and angiotensin II levels, and a significant increase in renin concentrations. Prenatal dexamethasone treatment enhanced hepatic AGT production, reduced renin, and partially restored proximal tubule maturation of AGTE3-4del/E3-4del mice, demonstrating beneficial effects on both renal development and molecular abnormalities in this fatal genetic model.
Conclusions: AGT is very crucial in maintaining renin-angiotensin system homeostasis and supporting normal kidney development. Antenatal dexamethasone administration can partially ameliorate renal and molecular abnormalities caused by AGT mutation-induced ARRTD.

83 **Proteomic Profiling of Urinary Exosomes Reveals Coordinated Alterations of Adhesion-related Proteins in Proteinuria**
蛋白體分析顯示蛋白尿患者尿液外泌體中細胞黏附相關蛋白之協調性改變

Pei-Chen Lu[1,2], Wei-Ting Liao[1], Chen-Hao Li[1], Chien-Ning Hsu[3,4], You-Lin Tain[1,2,5]
Division of Pediatric Nephrology, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung 833, Taiwan[1]; Department of Pediatrics, Kaohsiung Municipal Ta-Tung Hospital, Kaohsiung 801, Taiwan[2]; Department of Pharmacy, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung 833, Taiwan[3]; School of Pharmacy, Kaohsiung Medical University, Kaohsiung 807, Taiwan[4]; College of Medicine, Chang Gung University, Taoyuan 333, Taiwan[5]
盧姵真 [1,2]、廖偉婷 [1]、李振豪 [1]、許茜甯 [3,4]、田祐霖 [1,2,5]
高雄長庚紀念醫院 小兒腎臟科 [1]; 高雄市立大同醫院 小兒科 [2]; 高雄長庚紀念醫院 藥劑科 [3]; 高雄醫學大學 藥學院 [4]; 長庚大學 醫學院 [5]

Background: Urinary exosomes reflect molecular processes occurring along the nephron and have emerged as a non-invasive source of biomarkers for kidney disease. While proteinuria is known to be associated with inflammatory and barrier-disruption signatures, the status of adhesion-related molecular networks in urinary exosomes remains poorly defined.
Methods: Urinary exosomes were isolated from a patient with proteinuria and a healthy control using standardized isolation protocols. Proteomic profiling was performed by LC–MS/MS. Protein abundance was normalized and compared between groups. Identified proteins were functionally annotated with a focus on adhesion-associated pathways, cytoskeletal regulation, and membrane microdomain organization.
Results: Global proteomic profiling identified comparable numbers of exosomal proteins in control and proteinuric samples, with highly similar overall intensity distributions, indicating robust analytical performance. Proteinuria-associated exosomes exhibited marked upregulation of plasma proteins, immunoglobulin components, acute-phase reactants, and extracellular matrix–related proteins, consistent with filtration barrier disruption and inflammatory activation. In contrast, a coordinated reduction of adhesion-related proteins was observed in proteinuric urinary exosomes. These included cytoskeletal elements (ACTB, ACTG1, VIM, TUBB), actin regulatory proteins (PFN1, CFL1, EPS8), integrin-associated signaling molecules (RHOA, RAP1A), and membrane microdomain organizers (PODXL, PROM2, FLOT2, TSPAN4). Collectively, these proteins showed reduced abundance in proteinuria (proteinuria/control ratios approximately 0.05–0.46), suggesting disruption of adhesion-associated microdomains.
Conclusions: Urinary exosome proteomics reveals a distinct proteinuria-associated signature characterized not only by inflammatory and barrier-leakage markers but also by a coordinated depletion of adhesion-related proteins. These findings suggest that early alterations in cell–matrix and cytoskeletal adhesion networks are reflected in urinary exosome cargo and may provide mechanistic insight and baseline reference for future studies of glomerular injury.

84 **Genetic Basis and Clinical Features of Non-neurogenic Neurogenic Bladder in Taiwanese Children: A Multi-Center Study**
台灣兒童非神經性神經性膀胱之遺傳基礎與臨床特徵：多中心研究

Jhao-Jhuang Ding[2], I-June Tsai[3], Stephen SD Yang[4,5], Jeng-Daw Tsai[6,7,8,9], Min-Hua Tseng[1]
Division of Nephrology, Department of Pediatrics, Chang Gung Memorial Hospital, Taoyuan, Taiwan[1]; Department of Pediatrics, Department of Medicine, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan[2]; Division of Nephrology, Department of Pediatrics, National Taiwan University Children Hospital, Taipei,

Taiwan[3]; Division of Urology, Department of Surgery, Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, New Taipei City, Taiwan[4]; Department of Urology, School of Medicine, Tzu Chi University, Hualien, Taiwan[5]; Division of Nephrology, Department of Pediatrics, MacKay Children's Hospital, Taipei, Taiwan[6]; Department of Medicine, MacKay Medical College, New Taipei City, Taiwan[7]; Department of Pediatrics, Taipei Medical University Hospital, Taipei, Taiwan[8]; Department of Pediatrics, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan[9]
丁肇壯[2]、蔡宜蓉[3]、楊緒棣[4,5]、蔡政道[6,7,8,9]、曾敏華[1]
林口長庚紀念醫院兒童腎臟科[1]; 三軍總醫院小兒部[2]; 台大兒童醫院兒童腎臟科[3]; 台北慈濟醫院泌尿科[4]; 慈濟大學醫學系泌尿學科[5]; 馬偕兒童醫院兒童腎臟科[6]; 馬偕醫學院醫學系[7]; 臺北醫學大學附設醫院兒科部[8]; 臺北醫學大學醫學院醫學系小兒學科[9]

Background: Non-neurogenic neurogenic bladder (NNNB) in children is a rare, morbid disorder with an increasingly recognized genetic basis. This study describes the clinical, laboratory, imaging, genetic, and treatment profiles of Taiwanese children with genetically confirmed NNNB.
Methods: Fifteen children with suspected NNNB were identified from multiple Taiwanese centers, and five with genetically confirmed NNNB were analyzed.
Results: The median age at diagnosis was 6 years (2–9), with a slight female predominance, and most children had daytime urinary symptoms, constipation, and preserved kidney function. Imaging commonly showed bladder wall thickening, postvoid residual urine, hydroureteronephrosis, and vesicoureteral reflux, with all patients demonstrating abnormal uroflowmetry patterns. Pathogenic variants were detected in ACTG2 (3 patients), TP63, and HNF1B, frequently accompanied by bowel motility disorders. All the affected amino acids are highly conserved across species. Management ranged from pharmacologic therapy to intermittent catheterization or vesicostomy, and during 2–8 years of follow-up no patient required dialysis and only one progressed to stage II chronic kidney disease.
Conclusions: Children with genetically confirmed NNNB had early-onset lower urinary tract dysfunction, frequent constipation, and heterogeneous but characteristic imaging abnormalities, with generally preserved kidney function at diagnosis. Recurrent ACTG2, TP63, and HNF1B variants broaden the genetic spectrum of NNNB and support genetic testing to guide diagnosis and individualized management.

85 **Epidemiology of urinary tract infection and risk factors for bacteremia and recurrence in children**
兒童泌尿道感染之流行病學及菌血症與復發之危險因子

Jei-Wen Chang[1,2], Hsin-Lin Tsai[2,3], Hui-Hsin Yang[2,3]
Department of Pediatrics, Taipei Veterans General Hospital[1], School of Medicine, National Yang Ming Chiao Tung University[2], Division of Pediatric Surgery, Department of Surgery, Taipei Veterans General Hospital[3]
張瑞文[1,2]、蔡昕霖[2,3]、楊惠馨[2,3]
臺北榮民總醫院兒童醫學部[1];國立陽明交通大學醫學院醫學系[2];臺北榮民總醫院外科部兒童外科[3]

Background: Sex and age can influence the rates and severity of urinary tract infection (UTI). This study aimed to determine the influence of sex on the epidemiology of UTI in the inpatient setting in Taiwanese children and factors associated with the occurrence of bacteremic/septic UTI and recurrence.
Methods: This retrospective cohort study used data from the Longitudinal Health Insurance Database 2010 between 1998-2013. Risk factors for bacteremic/septic UTI and recurrent UTI were analyzed.
Results: We enrolled 4524 children with newly diagnosed UTI. Obstructive defects of the renal system, atresia and stenosis of the urethra and bladder neck, hydronephrosis and vesicoureteral reflux (VUR) were more common in boys. Children aged ＞0.25 years had significantly lower odds of bacteremic/septic UTI than those aged 0.25 years. Acute kidney injury (AKI) was associated with bacteremia/septicemia. Risk factors for recurrent UTI included male sex, VUR, cystic kidney disease, obstructive defects of the renal pelvis and ureter, hydronephrosis, spina bifida and bladder and bowel dysfunction (BBD).
Conclusions: CAKUT were more common in males. Clinicians should identify and manage congenital anomalies of the kidney and urinary tract and BBD as early as possible and initiate timely management for bacteremic/septic UTI in infants 0.25 years old with concurrent AKI.

86 **High expression of KIR+CD8+ T cells in peripheral blood mononuclear cells indicate T cell exhaustion in BKV nephropathy after kidney transplantation**
腎臟移植後 BK 病毒腎病變病人周邊血液 KIR+CD8+ T 細胞呈現高度表現。

Tsung-Ju Li, Ching-Yuang Lin
Division of Pediatric Nephrology, Children's Hospital, China Medical University, Taichung
李宗儒、林清淵
中國醫藥大學兒童醫院 兒童腎臟科

Background: BKV associated with nephropathy (BKVN) represents a serious complication of the post-transplant period in kidney transplant recipients leading to organ loss in 50 – 80% of all cases. Currently, there is no antiviral treatment for BKVAN and the recommended approach to management of BKVAN is a reduction of immunosuppressants. There was a significant differences in clearance time of BKV viremia. KIR+CD8+ T cell was an important regulatory T cell. KIR+ receptors appeared to suppression of cytotoxic function of T cell during chronic infection. In our previous preliminary data, we found high level of KIR+CD8+ T cells in peripheral blood mononuclear cells (PBMCs) of BKVN patients. BKV-specific T cells achieve sufficient anti-viral control by cellular immunity. Clinically, there was significant difference in clearance time of BKVN between transient and persistent BKV viremia. Persistent BKV viremia on BKVN always progress to chronic allograft failure. KIR expression on CD8+ T cells during chronic viral infection and correlated with reducing T cell activation in response to TCR-mediated CD8+ T cells cytotoxicity. We hypothesize that expression of KIR exhaustion marker on CD8+ T cells may contribute to the loss of the potential to suppress viral replication. The study aim was to determine the difference level of KIR+CD8+ T cells of those who had transient BKV viremia versus those persistent BKV viremia on BKVN.
Methods: Using flow cytometry to measure KIR exhaustion marker expression on BKV specific CD8+ T cells on PBMCs.
Results: BKV viremia clearance was different between KIR+ expression on specific CD8+ T cells, steady KIR+

expression was accumulated steady over time during persistent BKV viremia on BKVN. Persistent KIR expression was associated with persistent viremia on BKVN.
Conclusions: Expression of exhaustion marker KIR+ on CD8+ T cells contribute to impair BKV clearance on BKVN after kidney transplantation. Ongoing study is to determine in vitro cytotoxic function of BKV specific CD8+ T cells on PBMCs. Today, the humanized anti-KIR mAb was available. The results might be provide a potential therapeutic value on precision medicine of BKVN patients.

87 **Urinary Ascites: A Potentially Fatal and Often Underrecognized Complication of Pediatric Urinary Tract Disorders**
兒童尿性腹水：潛在致命且常被忽略的尿路併發症

Guan-Ying Wu[1], Pei-Yeh Chang[2], Jeng-Daw Tsai[3], Min-Hua Tseng[1]
Division of Nephrology, Department of Pediatrics, Chang Gung Memorial Hospital, Taoyuan, Taiwan[1]、Division of Pediatric Surgery, Department of Surgery, Chang Gung Memorial Hospital, Taoyuan, Taiwan[2];Division of Nephrology, Department of Pediatrics, MacKay Children's Hospital, Taipei, Taiwan[3]
吳冠穎[1]、張北葉[2]、蔡政道[3]、曾敏華[1]
林口長庚兒童腎臟科[1]、林口長庚小兒外科[2];馬偕兒童醫院兒童腎臟科[3]

Background: Urinary ascites is a rare but potentially life-threatening condition in children, resulting from urine extravasation into the peritoneal cavity due to urinary tract obstruction, rupture, or iatrogenic injury. Because its presentation is often nonspecific and accompanied by severe metabolic derangements, urinary ascites may mimic acute kidney injury (AKI) and delay appropriate diagnosis and management. Data describing its clinical spectrum and outcomes in pediatric patients remain limited.
Methods: We retrospectively reviewed pediatric patients diagnosed with urinary ascites at Chang Gung Memorial Hospital over a 15-year period. Clinical characteristics, laboratory findings, imaging, management, and outcomes were collected. The diagnosis of urinary ascites was established based on characteristic imaging findings and/or biochemical analysis of ascitic fluid.
Results: Five male patients (median age 7 months; range 0 day–11 years) were identified. Etiologies included congenital anomalies of the kidney and urinary tract (CAKUT, n=3), retroperitoneal fibrosis (n=1), and iatrogenic injury (n=1). All patients presented with oliguria and severe electrolyte derangements, accompanied by diverse initial extrarenal manifestations such as seizures, respiratory distress, vomiting, or arrhythmias. Ascitic fluid analysis (n=4) showed a fluid-to-serum creatinine ratio >1 in only 50% (2/4) of cases; others were confirmed by imaging and response to decompression. All required prompt urinary decompression, and one preterm infant needed transient peritoneal dialysis. At a median 5-year follow-up, 80% (4/5) maintained normal renal function, while one progressed to chronic kidney disease (CKD) stage 3a. No mortality occurred.
Conclusions: Urinary ascites is frequently mistaken for AKI in children. Because its initial symptoms are varied, clinicians should carefully consider this diagnosis in patients with unexplained ascites and metabolic issues. Early diagnosis with combination of clinical evaluation, imaging, and biochemical tests is essential for timely treatment and good long-term renal outcomes.

88 **Maternal Age-Specific Risk Profiles for Small-for-Gestational-Age Birth: A Population-Based Study**
不同母親年齡層之小於胎齡兒出生風險概況：全人口世代研究

You-Lin Tain[1], Chien-Ning Hsu[2]
Division of Pediatric Nephrology [1] and Department of Pharmacy [2], Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan
田祐霖[1]、許茜甯[2]
高雄長庚紀念醫院兒童腎臟科[1], 藥劑部[2]

Background: Small-for-gestational-age (SGA) births remain a major determinant of neonatal morbidity and long-term health risks. However, how maternal comorbidities and pregnancy complications contribute to SGA across different maternal age groups remains unclear in Asian populations.
Methods: Using Taiwan National Birth Statistics from 2007–2017, we identified 2,021,558 singleton live births between 21- and 44-weeks' gestation. SGA was defined as birthweight below the 10th percentile for gestational age and sex. Multivariable logistic regression estimated adjusted odds ratios (aORs) for the associations between maternal characteristics and SGA risk, stratified by age (<25, 25–34, ≥ 35 years). Maternal factors included chronic hypertension, kidney disease, systemic lupus erythematosus (SLE), thalassemia, pre-existing diabetes, and placental-related conditions. Infant characteristics and sociodemographic variables were included as covariates.
Results: SGA incidence was 8.78% with a significant average annual percent change of 1.09%. Maternal age modified risk patterns: younger mothers (<25 years), showed strong associations for SLE (aOR 3.61, 95% CI 1.75–7.43), thalassemia (aOR 1.38, 1.09–1.75), and prior preterm/low birthweight delivery (aOR 1.71, 1.31–2.23). Kidney disease also posed an elevated risk (aOR 1.66, 0.74–3.74). The dominant risk factor shifted in older mothers (≥ 35 years) group, showing the highest risks from hypertension (aOR 2.48, 2.16–2.84) and kidney disease (aOR 1.63, 1.07–2.49). SLE remained a significant risk factor across all age groups, with the largest effects observed in the youngest mothers, and persistently high risk in older women (aOR 2.95, 2.10–4.15). Congenital anomalies of kidney and urinary tract showed a strong association with SGA across the entire maternal age spectrum (aORs ranging from 3.11–3.70).
Conclusions: Maternal age meaningfully modifies comorbidity-related SGA risk over two million Taiwanese births. These findings support the development of age-specific antenatal risk stratification and targeted, aged-appropriate perinatal interventions to reduce the burden of SGA in Asian populations.

89 **Clinical Characteristics and Comorbidity Clustering in Taiwanese Children with Obesity: A Cross-sectional Study from a Single Center**
台灣肥胖兒童臨床特徵與共病症叢集現象：單一中心橫斷性研究

Min Lee[1], Fang-Yuan Chang[1], Ju-Yin Chen[2], Chi-Nan Huang[1]

Taipei City Hospital Heping Fuyou Branch, Department of Pediatrics[1];IHMED Children Healthcare Center[2]
李敏[1]、張芳瑗[1]、陳如瑩[2]、黃啟南[1]
臺北市立聯合醫院和平婦幼院區小兒科[1];愛群兒童成長診所[2]

Background: Childhood obesity is a growing public health concern in Taiwan. However, comprehensive data on clinical characteristics and comorbidity patterns remain limited. This study aimed to characterize clinical features of children attending a pediatric weight management clinic and explore comorbidity clustering patterns.
Methods: We conducted a cross-sectional analysis of 326 children (mean age 10.4 years, 62.6% male) visiting our clinic between 2019-2025. Assessments included anthropometrics, body composition, 6-minute walk test (6MWT), and laboratory tests. Comorbidities including fatty liver, acanthosis nigricans, GERD, and depression were documented. Spearman correlations examined relationships between variables.
Results: Median BMI Z-score was 2.73. Comorbidity prevalence: fatty liver 41.3%, acanthosis nigricans 35.0%, depression 24.8%, and GERD 25.1%. Prediabetic HbA1c was found in 29.8%. Analysis revealed two distinct clusters: a "metabolic-hepatic cluster" linking fatty liver with BMI Z-score (r=0.31), body fat (r=0.28), uric acid (r=0.25), and ALT (r=0.42); and a "psychological-GI cluster" showing associations in depression, headache and GERD in older adolescents.
Conclusions: Obese children demonstrated high comorbidity prevalence with distinct clustering patterns. The metabolic-hepatic and psychological-GI clusters suggest differentiated clinical approaches are needed. Psychologic screening should be incorporated into routine assessments, particularly for children with GERD or adolescents.

90 **Clinical Utility of the 6-Minute Walk Test in Childhood Obesity: First Application of Taiwan-Specific Z-Scores for Cardiopulmonary Assessment**
六分鐘步行測試在兒童肥胖的臨床應用：首次使用台灣本土常模進行心肺功能評估

Chi-Nan Huang[1], Ju-Yin Chen[2], Min Lee[1], Fang-Yuan Chang[1]
Taipei City Hospital Heping-Fuyou Branch, Department of Pediatrics[1]; IHMED Children Healthcare Center[2]
黃啟南[1]、陳如瑩[2]、李敏[1]、張芳瑗[1]
臺北市立聯合醫院和平婦幼院區小兒科[1];愛群兒童成長診所[2]

Background: The 6-minute walk test (6MWT) is a practical, low-cost tool for assessing cardiopulmonary fitness. However, its clinical utility in pediatric obesity management remains underexplored, particularly using population-specific reference values. This study is the first to apply Taiwan-specific 6MWT Z-scores in obese children, evaluating its associations with obesity severity, metabolic comorbidities, and treatment outcomes.
Methods: We conducted a prospective cohort study of 326 obese children (mean age 10.4 years, 62.6% male) attending our weight management clinic. 6MWT was performed at baseline and follow-up visits, expressed as both absolute distance and age-height adjusted Z-scores using Taiwan pediatric norms. Cross-sectional correlations with anthropometrics, body composition, laboratory values, and comorbidities were examined. Longitudinal changes (median follow-up 287 days, n=186) were correlated with changes in BMI Z-score, body fat percentage, and skeletal muscle parameters.
Results: At baseline, 19.7% had 6MWT Z-scores below -1, indicating impaired cardiopulmonary fitness. The 6MWT Z-score showed significant correlations with BMI Z-score (r=-0.41), body fat (r=-0.39), fatty liver (r=-0.25), depression (r=-0.21), and skeletal muscle ratio (r=+0.31, $p < 0.001$), supporting the theoretical relationship between cardiopulmonary fitness and muscle mass. Longitudinally, 68.8% demonstrated improvement in 6MWT distance (mean +29.7m) and 65.9% in 6MWT Z score (mean +0.35). Medium-term 6MWT changes significantly correlated with BMI Z-score changes (r=-0.20, p=0.008), body fat changes (r=-0.31, $p < 0.001$), and skeletal muscle ratio changes (r=+0.34, $p < 0.001$).
Conclusions: Using Taiwan-specific Z-scores, we demonstrated that 6MWT effectively identifies obese children with impaired cardiopulmonary fitness and correlates with obesity-related comorbidities. The positive correlation between 6MWT and muscle parameters confirms theoretical expectations. 6MWT improvement parallels weight management success, supporting its use as an objective outcome measure in pediatric obesity programs.

91 **Predictors of Weight Management Success in Children with Obesity: The Myth of Baseline Characteristics and the Importance of Sustained Follow-up**
兒童肥胖減重成效預測因子：初始特徵的迷思與持續追蹤的重要性。

Fang-Yuan Chang[1], Chi-Nan Huang[1], Ju-Yin Chen[2], Min Lee[1]
Department of Pediatrics, Taipei City Hospital Branch for Women and Children, Taipei, Taiwan[1]; IHMED Children Healthcare Center[2]
張芳瑗[1]、黃啟南[1]、陳如瑩[2]、李敏[1]
臺北市立聯合醫院和平婦幼院區小兒科[1]; 愛群兒童成長診所[2]

Background: Identifying predictors of weight management success in children is crucial for clinical decisions. While baseline characteristics are assumed to predict outcomes, evidence in pediatric populations is limited. This study identified predictors of short-term (3-month) and medium-term (10-month) outcomes, comparing baseline characteristics between most and least successful cases.
Methods: We analyzed 201 children with follow-up visits. Short-term outcomes were assessed at first follow-up (median 91 days), medium-term at last follow-up (median 287 days). Primary outcomes were BMI Z-score and body fat changes. Spearman correlations examined baseline predictors. Top 20% most improved versus bottom 20% least improved cases were compared using Mann-Whitney U tests.
Results: For short-term outcomes, no baseline characteristics predicted improvement except baseline BMI Z-score (r=-0.23, regression to mean). For medium-term, follow-up duration (r=-0.35, $p < 0.001$) and visit number (r=-0.33, $p < 0.001$) were strongest predictors; baseline characteristics showed weak associations. Remarkably, most successful (BMI Z change -0.68) versus least successful

(+0.32) groups showed no baseline differences: age (p=0.89), BMI Z-score (p=0.47), body fat (p=0.34), 6MWT (p=0.52), HbA1c (p=0.71), depression (p=0.38). Only follow-up duration differed (385 vs 198 days, $p < 0.001$).

Conclusions: Baseline characteristics failed to predict success. Most and least successful cases were indistinguishable initially, challenging assumptions about "high-potential" patients. Sustained engagement was the primary success determinant. Every child has improvement potential regardless of initial presentation; continued care is critical.

92 **Dropout from Pediatric Weight Management: Psychological Factors Outweigh Metabolic Abnormalities as Predictors**

兒童肥胖門診流失率分析：心理因素比代謝異常更能預測中斷追蹤

Ju-Yin Chen[1], Fang-Yuan Chang[2], Min Lee[2], Chi-Nan Huang[2]
IHMED Children Healthcare Center[1];Taipei City Hospital Heping-Fuyou Branch, Departement of Pediatrics[2]
陳如瑩[1]、張芳瑗[2]、李敏[2]、黃啟南[2]
愛群兒童成長診所[1];臺北市立聯合醫院和平婦幼院區小兒科[2]

Background: High dropout rates challenge pediatric weight management programs. While metabolic complications are prioritized in assessments, their role in predicting adherence remains unclear. This study compared baseline characteristics between children who continued follow-up versus dropouts, focusing on metabolic versus psychological factors.

Methods: We analyzed 326 children from our clinic. Dropout was defined as failure to return after initial visit. Baseline demographics, anthropometrics, body composition, 6MWT, laboratory values, and comorbidities were compared using Mann-Whitney U and chi-square tests.

Results: Of 326 children, 201 (61.7%) continued follow-up while 124 (38.0%) dropped out. Dropouts were older (10.9 vs 10.1 years, p=0.007) with higher waist-to-hip ratio (p=0.055). Depression was more prevalent in dropouts (39.8% vs 22.7%, p=0.004), as was GERD (37.1% vs 18.1%, $p < 0.001$). Metabolic parameters showed no differences: HbA1c (p=0.631), glucose (p=0.585), triglycerides (p=0.067), HDL (p=0.822), LDL (p=0.086), uric acid (p=0.128). BMI Z-score (p=0.134), body fat (p=0.519), and 6MWT Z score (p=0.967) also did not differ. Unexpectedly, AST was lower in dropouts (21 vs 23 U/L, p=0.001).

Conclusions: Age and psychological comorbidities, particularly depression and GERD, predicted dropout, while metabolic abnormalities showed no association. This challenges assumptions that metabolically healthier children disengage more. Mental health screening and support should be incorporated into initial visits, especially for adolescents with depression or GERD, to improve program retention.

93 **A Multicenter Real-world Study on the Safety and Effectiveness of the Glucagon-like peptide-1 Receptor Agonist (Liraglutide) in Adolescents with Obesity in Taiwan**

GLP-1 RA (Liraglutide) 治療台灣肥胖青少年之安全性與療效：真實世界多中心研究

Chiao-Fan Chiu[1,2], Chu-Kuang Chou[3,4], Shu-Wei Hu[5,6], Kuo-Chin Huang[7,8], Yi-Lei Wu[9], Hsiang-Fan Wu[10], Huey-Ling Chen[8,11], Chun-Yan Yeung[12,13]
Division of Pediatric Endocrinology and Genetics, Department of Pediatrics, Chang Gung Memorial Hospital [1]; School of Medicine, College of Medicine, Chang Gung University [2]; Division of Gastroenterology and Hepatology, Department of Internal Medicine [3], Obesity Center, Ditmanson Medical Foundation Chia-Yi Christian Hospital [4]; Chia An Medical Clinic [5]; Division of Pediatric Gastroenterology and Hepatology, Department of Pediatrics, Tungs' Taichung MetroHarbor Hospital [6]; Department of Family Medicine, National Taiwan University Hospital [7]; College of Medicine, National Taiwan University [8]; Department of Pediatric Endocrinology, Changhua Christian Children's Hospital [9]; Department of Pediatrics, Kung Tien General Hospital [10]; Department of Pediatrics, National Taiwan University College of Medicine and Hospital [11]; Department of Pediatrics, Hsinchu Municipal MacKay Children's Hospital [12]; Department of Medicine, MacKay Medical University [13]
邱巧凡[1,2]、周莒光[3,4]、胡書瑋[5,6]、黃國晉[7,8]、吳怡磊[9]、鄔翔帆[10]、陳慧玲[8,11]、楊俊仁[12,13]
林口長庚紀念醫院兒童內分泌暨遺傳科[1]; 長庚大學醫學院[2]; 嘉義基督教醫院胃腸肝膽科[3]、減重中心[4]; 佳安醫學診所[5]; 童綜合醫院小兒腸胃科[6]; 國立臺灣大學醫學院附設醫院家庭醫學科[7]; 國立臺灣大學醫學院[8]; 彰化基督教兒童醫院兒童內分泌科[9]; 光田綜合醫院兒科[10]; 國立臺灣大學醫學院附設醫院兒童醫院小兒胃腸科[11]; 新竹市立馬偕兒童醫院兒童胃腸肝膽科[12]; 馬偕醫學大學[13]

Background: Pediatric obesity is linked to metabolic complications. We evaluated the safety and effectiveness of GLP-1 receptor agonist (RA), liraglutide, among adolescents with obesity in routine clinical practice in Taiwan.

Methods: We conducted a prospective study (NCT06283641) at 14 hospitals/clinics from February 2024 to March 2025. Data were collected from adolescents receiving non-reimbursed, once-daily liraglutide at baseline, week 13 and week 26. Demographics, safety and effectiveness outcomes, including incidence proportions (IP) of adverse events (AEs), adverse drug reactions (ADRs), changes in body weight (BW) and body mass index (BMI) were assessed.

Results: Among 41 adolescents treated, majority (22, 53.66%) were male, with mean (±standard deviations, SD) age 13.9±1.78 years, BW 88.48±19.26 kg and BMI 33.42±5.13 kg/m2. About half (19, 46.34%) had medical history of hepatic impairment. Hyperuricemia (15, 36.59%), dyslipidemia (13, 31.71%), acanthosis nigricans (10, 24.39%), precocious puberty (6, 14.63%), and hypertension (6, 14.63%) were common. Mean daily and maximum doses were 1.42±0.46 mg/day and 1.81±0.68 mg/day, respectively, through 128.3±56.01 days and 14.36% escalated to 3.0mg. Overall IP of AEs was 19.51% (8/41, 13 events), all were mild and most (11/13) reported < 13 weeks. Overall IP of ADRs was 9.76% (4/41, 6 events). Gastrointestinal events were most frequent, followed by

injection site-related. None discontinued liraglutide due to intolerance. At week 13, mean BW, BMI and BMI standard deviation score (SDS) losses were -2.74±3.76 kg (p=0.0003), -1.28±1.41 kg/m2 (p＜0.0001) and -0.23±0.22 (p＜0.0001), respectively. By week 26, respective mean losses increased to -4.45±5.70 kg (p=0.0015), -1.92±2.1 kg/m2 (p=0.0004), -0.37±0.34 (p＜0.0001); mean BMI loss was -5.91±6.10%.

Conclusions: Among adolescents prevalent with multisystem obesity-related comorbidities in Taiwan, GLP-1 RA (liraglutide) administered at doses below recommended target (3.0mg) was safe and effective. Mean daily dose of 1.4mg and maximum daily dose of 1.8mg were well-tolerated and resulted in significant BW, BMI and BMI SDS reductions.

94 **The Effect of Short-term Liraglutide on Improving Insulin Sensitivity and Liver Markers in Obese Adolescents: A Retrospective Study**

短期 Liraglutide 治療對肥胖青少年胰島素敏感性及肝臟發炎指數的改善效益分析：一項回溯性研究

Shu-Wei Hu[1,2,3], Ting-Hsuan Chang[4], Wei-Kian Chua[5]
Chia An Medical Clinic, Taichung, Taiwan[1]; Doctoral Program in Translational Medicine, National Chung Hsing University, Taichung, Taiwan[2]; Rong Hsing Translational Medicine, National Chung Hsing University, Taichung, Taiwan[3]; Department of Pediatrics, Tungs' Taichung MetroHarbor Hospital, Taichung, Taiwan[4]; Dianthus MFM Clinic ANHE, Taichung, Taiwan[5]
胡書瑋[1,2,3]、張庭瑄[4]、蔡維鍵[5]
佳安醫學診所[1]；國立中興大學轉譯醫學博士學位學程[2]；國立中興大學榮興轉譯醫學研究中心[3]；童綜合醫療社團法人童綜合醫院兒童醫學部[4]；禾馨安和婦幼診所[5]

Background: Pediatric obesity is a growing public health challenge. While lifestyle modification (LSM) remains the standard of care, its efficacy is often limited in severe cases. This study evaluated the efficacy of Liraglutide combined with LSM versus LSM alone on anthropometric and metabolic parameters in adolescents with obesity.

Methods: We conducted a retrospective cohort study comparing adolescents treated with Liraglutide (n=16) against those receiving LSM only (n=40). The Liraglutide group received treatment for 3 months with a maximum daily dose of 2.4 mg. Both groups were followed up for a total of 6 months. Key outcomes included percentage changes in BMI, BMI-SDS, HOMA-IR, and liver enzymes (GPT, APRI). Baseline characteristics were compared, and regression analysis was performed to assess the correlation between weight loss magnitude and metabolic improvements.

Results: The Liraglutide group had significantly higher baseline weight, BMI, and HOMA-IR than the LSM group (p＜0.05), indicating a more severe clinical profile. Despite this, the Liraglutide group achieved significantly greater reductions in BMI (-7.65% vs. -4.26%, p=0.009) and HOMA-IR (-33.36% vs. +67.07%, p=0.015). Reductions in APRI were also significantly greater in the Liraglutide group compared to the LSM group (-44.72% vs. -19.08%, p=0.005). Notably, regression analysis within the Liraglutide group revealed that improvements in HOMA-IR and liver enzymes were not strictly linearly correlated with the magnitude of BMI reduction.

Conclusions: Short-term Liraglutide treatment demonstrates superior efficacy in reducing BMI and improving insulin sensitivity and liver function in adolescents with severe obesity compared to LSM alone. The findings suggest that Liraglutide may provide metabolic benefits independent of the degree of weight loss, highlighting its potential value for patients with metabolic dysfunction-associated obesity.

95 **The Resilience of Adolescents with Long COVID: A Longitudinal Analysis Using Linear Mixed Models**

長新冠與青少年復原力之關聯：以線性混合模型進行縱貫分析

I-Jen Wang[1,2,3,4], Su-Jung Huang[1], Meng-Li Lu[4], Hsiao-Hui Tsou[4]
Department of Pediatrics, Taipei Hospital, Ministry of Health and Welfare, Taipei, Taiwan[1]; School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan[2]; College of Public Health, China Medical University, Taichung, Taiwan[3]; National Institute of Environmental Health Sciences, National Health Research Institutes, Miaoli, Taiwan[4]
王怡人[1,2,3,4]、黃素容[1]、盧孟立[4]、鄒小蕙[4]
衛生福利部臺北醫院小兒科[1]；國立陽明交通大學醫學院[2]；中國醫藥大學公共衛生學院[3]；財團法人國家衛生研究院[4]

Background: Long COVID has raised growing concerns regarding its prolonged psychological impact on adolescents. Resilience and perceived stress are key indicators of adolescents' ability to adapt to persistent health challenges; however, longitudinal evidence describing their recovery trajectories remains limited.

Methods: This longitudinal study included 59 adolescents diagnosed with long COVID. Psychological outcomes were repeatedly assessed using validated resilience and Perceived Stress Scale (PSS) questionnaires. Time since acute infection was categorized as 0, 0.5, 1, 2, 3, 4, 5, 6, and ＞6 months. Linear mixed-effects models were applied to examine changes in total resilience and PSS scores over time, using the 0.5 month period as the reference.

Results: Trend analyses revealed clinically relevant differences across time points for resilience or PSS scores, though failed to reach statistically significance. Resilience scores showed an upward trend between months three and four and again after six months, suggesting gradual recovery of adaptive capacity. Higher resilience scores indicate a stronger ability to cope with adverse events such as COVID-19. In contrast, PSS scores demonstrated a downward trend between months two and three, indicating reduced perceived stress. Lower PSS scores reflect lower psychological stress levels.

Conclusions: The observed trends suggest that adolescents with long COVID may experience gradual psychological recovery over time. The absence of significantly statistical findings may be attributable to the small sample size or early recovery within the first 0.5 month in some individuals. From a policy perspective, these findings support the need for longitudinal mental health monitoring, school-based psychosocial support, and early screening for stress and resilience among adolescents recovering from COVID-19. Integrating mental health assessments into post-COVID pediatric care pathways may facilitate timely interventions and promote long-term well-being.

96 **Transient and Permanent Congenital Hypothyroidism: A Ten-Year Retrospective Study from a Newborn Screening Center**
暫時性與永久性先天性甲狀腺低下症：一新生兒篩檢中心的十年回溯性研究

Hsiao-Ju Liao[1], Wei-Yu Tsai[1], Yin-Hsiu Chien[1,2], Shih-Yao Liu[1], Cheng-Ting Lee[1], Yi-Ching Tung[1]
Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan [1]; Department of Medical Genetics[2], National Taiwan University Hospital, Taipei, Taiwan
廖曉茹 [1]、蔡文友 [1]、簡穎秀 [1,2]、劉士嶢 [1]、李正婷 [1]、童怡靖 [1]
國立台灣大學醫學院附設醫院小兒部 [1]、基因醫學部 [2]

Background: Congenital hypothyroidism (CH) is a common neonatal endocrine disorder that can be classified as permanent or transient. Accurate differentiation is essential to avoid unnecessary long-term levothyroxine therapy in transient CH.
Methods: This retrospective study included infants born between 2012 and 2021 who screened positive for CH at the Newborn Screening Center of National Taiwan University Hospital (NTUH) and received subsequent care at NTUH. Medical records were reviewed for screening data, laboratory results, imaging findings, and treatment information.
Results: Among 696,272 screened newborns, 1,462 screened positive and 953 were confirmed to have CH, corresponding to a prevalence of 1 in 731 live births. A total of 386 patients (52.3% male) were analyzed. Thyroid dysgenesis was identified in 57 patients. Among those with eutopic thyroid glands, 157 (40.7%) were diagnosed with dyshormonogenesis after medication withdrawal at 3 years of age, and 172 (44.6%) were confirmed to have transient CH. In the transient CH group, 24 infants had positive maternal thyroid antibodies, 22 were premature, and 9 had a history of major surgery with possible iodine exposure; no specific etiology was identified in 117 cases. Age at screening did not differ between groups, but age at diagnosis was significantly older in transient CH ($p = 0.012$). Permanent CH was associated with higher TSH levels at screening and first serum measurement (both $p < 0.001$). In contrast, transient CH showed higher initial thyroglobulin levels and lower levothyroxine doses at discontinuation (both $p < 0.001$). Initial T4, free T4, treatment dose, and time to euthyroidism did not differ between groups.
Conclusions: With lower screening cut-off values, the prevalence of transient CH has increased in Taiwan. Patients with transient CH tend to present with older age at diagnosis, lower initial TSH levels, higher thyroglobulin levels, and lower levothyroxine requirements, which may help guide clinical differentiation and treatment decisions.

97 **The HLA-DRB1 Gene Augments the Association between the HLA-B Gene and Graves Disease in Children: Case-control and Family-based Studies**
HLA-DRB1 基因強化 HLA-B 基因與兒童葛瑞夫茲氏病的關聯: 案例對照和以家族為基礎的研究

Ting WH[1,5], Lo FS[2], Lin CH[3], Wu YL[4], Kao YE[1], Chou J[1], Tsai CH[1], Lu CH[1], Chen SY[1,3], Lee YJ[1,5,6]
Departments of Pediatric Endocrinology, MacKay Children's Hospital, Taipei[1]; Department of Pediatrics, Chang Gung Memorial Hospital; College of Medicine, Chang Gung University, Taoyuan[2]; Department of Pediatric Endocrinology, Hsinchu MacKay Children's Hospital, Hisnchu[3]; Departments of Pediatric Endocrinology, Chuanghua Christian Children's Hospital, Chuanghua[4]; Department of Medicine, MacKay Medical University, New Taipei City[5]; Department of Medical Research, MacKay Memorial Hospital, Taipei, Taiwan[6]
丁瑋信 [1,5]、羅福松 [2]、林昭旭 [3]、吳怡磊 [4]、高宇恩 [1]、周融 [1]、蔡政勳 [1]、呂宗恆 [1]、陳思妤 [1,3]、李燕晉 [1,5,6]
馬偕兒童醫院, 兒童內分泌科 [1]; 長庚紀念童醫院, 兒童內分泌科 [2]; 新竹市立馬偕兒童醫院, 兒童內分泌科 [3]; 彰化基督教兒童醫院, 兒童內分泌科 [4]; 馬偕醫學大學 醫學院 醫學系 [5]; 馬偕紀念醫院 醫學研究部 [6]

Background: Graves disease (GD) is a multifactorial autoimmune thyroid disorder influenced by genetic, environmental, and sex-related factors. It affects up to 0.5% of the population and shows strong heritability, with a sibling risk ratio (λs) up to 15 and twin concordance suggesting nearly 80% genetic contribution. Among immune-related loci, the human leukocyte antigen (HLA) region confers the greatest genetic susceptibility. However, associated alleles differ across ethnicities, and disentangling associations within the tightly linked HLA complex remains challenging.
Methods: This study investigated HLA-B and HLA-DRB1 associations with GD in Taiwanese children. We enrolled 393 unrelated pediatric patients (82.0% girls, mean age 10.2 ± 3.2 years) and 946 healthy controls of Han Chinese origin. High-resolution genotyping was performed using SeCore and HLAssure sequencing kits, and allele frequencies were analyzed under Hardy–Weinberg equilibrium. Statistical comparisons used Chi-square and Fisher exact tests, with odds ratios (ORs) and 95% confidence intervals (CIs) calculated; linkage disequilibrium and haplotypes were evaluated using PyPop.
Results: The HLA-B*46:01 allele was significantly more frequent in patients than controls (OR = 3.59, $Pc = 9.03 \times 10^{-31}$), while HLA-B*58:01 was protective (OR = 0.52, Pc = 0.017). At the HLA-DRB1 locus, DRB1*09:01 increased susceptibility (OR = 2.35, $Pc = 1.48 \times 10^{-14}$), whereas DRB1*12:02 and *13:02 were protective. The HLA-B*46:01~DRB1*09:01 haplotype conferred the highest risk (OR = 3.95, $Pc = 5.29 \times 10^{-23}$). Conditional analyses showed B*46:01 was independently associated with GD, whereas DRB1*09:01 conferred risk only in the presence of B*46:01, indicating synergistic interaction.
Conclusions: In conclusion, HLA-B*46:01 is the principal genetic determinant of GD in Taiwanese children, while DRB1*09:01 enhances its effect through linkage and interaction, jointly conferring the greatest risk for disease susceptibility.

98 **Nationwide Epidemiology of Rickets in Taiwanese Children: Trends, Subtype Characteristics, and Mortality Predictors**
台灣兒童佝僂病之全國流行病學研究：趨勢、亞型特徵與死亡風險因子

Chun-Hao Chu[1,2], Chun-Chieh Hu[1], Yuan-Fu Chang[1,3], Chien-Ming Lin[1,2]
Department of Pediatrics, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan[1];

Department of Pediatrics, School of Medicine, College of Medicine, National Defense Medical University, Taipei, Taiwan[2]; Department of Pediatrics, Taipei Medical University Hospital, Taipei, Taiwan[3]
朱君浩[1,2]、胡鈞傑[1]、張原輔[1,3]、林建銘[1,2]
國防醫學大學三軍總醫院小兒部[1];國防醫學大學醫學院醫學系小兒學科[2];臺北醫學大學附設醫院兒科部[3]

Background: Rickets is a growth disorder that imposes a global health burden, and it causes disability in affected children. This condition is a metabolic bone disease characterized by disruptions in calcium, phosphorus, or vitamin D metabolism. The studies investigating the clinical epidemiology or mortality risk (ROM) across nutritional and hereditary rickets subtypes are still limited. Therefore, this study investigated the nationwide incidence, characteristics, and mortality-related risk factors of rickets in Taiwanese children.
Methods: This retrospective cohort study utilized data from Taiwan's National Health Insurance Research Database (NHIRD). We analyzed 1,551 patients aged 0–18 years identified between 2008 and 2018, and they conducted subgroup comparisons to assess how different etiologies affect ROM.
Results: Nutritional rickets was twice as common as the hereditary subtype. The nutritional form primarily affects preschoolers, but hereditary rickets is often diagnosed later, and it shows a male predominance,. Between 2012 and 2018, the overall incidence of rickets increased, while mortality rates decreased,. Low household income, anemia, chronic kidney disease, secondary hyperparathyroidism, and a prolonged length of hospital stay (LOS) are associated with ROM,. Patients with an LOS greater than 3 days had a 4.82-fold increased ROM.
Conclusions: The trends of increasing incidence and declining mortality rates suggest improvements in clinical awareness and disease management. Early diagnosis and targeted interventions must address social and medical vulnerabilities; this is critical to reducing rickets-related mortality.

99 **A Comprehensive Survey of Genetic Etiologies in Taiwanese Pediatric Calcium Metabolism Disorders Using Serial Genetic Testing**
應用系列基因檢測對台灣兒童鈣代謝疾病遺傳病因之全面性研究

Ting-Yu Kang[1], Yen-Yin Chou[1,2], Yu-Ming Chang[1,2], Yu-Wen Pan[1], Meng-Che Tsai[1,2]
Department of Pediatrics, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Taiwan[1]; Department of Genomic Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Taiwan[2]
康庭瑜[1]、周言穎[1,2]、張聿民[1,2]、潘妤玟[1]、蔡孟哲[1,2]
國立成功大學醫學院附設醫院小兒部[1];國立成功大學醫學院附設醫院基因醫學部[2]

Background: Inherited disorders of calcium metabolism are rare pediatric conditions that exhibit significant phenotypic overlap and clinical heterogeneity, ranging from seizures to subtle skeletal abnormalities. Precise molecular diagnosis is critical for clinical management but remains challenging. This study aimed to evaluate the diagnostic utility of a serial genetic testing strategy to elucidate the genetic etiologies and broaden the mutational spectrum in a Taiwanese pediatric cohort.
Methods: We conducted a retrospective analysis of 13 pediatric patients presenting with calcium metabolism disorders at a tertiary center in southern Taiwan (2020–2025). We implemented a serial genetic testing algorithm: patients with syndromic phenotypes first underwent array CGH or MLPA to detect copy number variations (CNVs). For non-syndromic cases or those with uninformative initial testing, Whole Exome Sequencing (WES) was performed to identify single-nucleotide variants.
Results: The pediatric cohort (median diagnostic age: 2 years) demonstrated a high molecular diagnostic yield of 92.3% (12/13) using this serial approach. The spectrum of diagnoses included hypoparathyroidism (n=7), PTH resistance (n=3), calcipenic rickets (n=1), hyperparathyroidism (n=1), and syndromic hypercalcemia (n=1). We identified pathogenic variants in CASR, GNAS, PRKAR1A, CYP27B1, and KMT2D. Two novel variants were identified (CASR p.Val836Ile and GNAS c.719-30A ＞ T). Clinical characterization revealed significant heterogeneity, including variable multisystem involvement in syndromic hypoparathyroidism and incomplete penetrance in autosomal dominant hypocalcemia.
Conclusions: Our findings demonstrate that a serial genetic testing strategy provides a comprehensive and high-yield diagnostic resolution for pediatric calcium metabolism disorders. The identification of novel variants and population-specific genetic data expands the known mutational landscape, facilitating precise genetic counseling and tailored management strategies in pediatric endocrinology.

100 **Real-world Effectiveness of Continuous Glucose Monitoring on Glycemic Control in Newly Diagnosed Children with Type 1 Diabetes**
連續血糖監測對新診斷第 1 型糖尿病兒童血糖控制的真實世界成效

Cheng-Hsun Tsai, Yann-Jinn Lee, Chi-Yu Huang, Yu-En Kao, Jung Chou, Chung-Heng Lu, Ssu-Yu Chen, Wei-Hsin Ting
Department of Pediatric Endocrinology, MacKay Children's Hospital
蔡政勳、李燕晉、黃琪鈺、高宇恩、周融、呂宗恆、陳思妤、丁瑋信
馬偕兒童醫院兒童內分泌科

Background: Optimizing glycemic control is fundamental in children and adolescents with type 1 diabetes (T1D). The concept of "metabolic memory" emphasizes early intervention, as glycemic patterns established within the first year often persist. While continuous glucose monitoring (CGM) is proved to be beneficial for T1D patients in the literature, longitudinal evidence in Taiwan remains limited. This study analyzed glycemic trajectories to determine the association between CGM adoption and HbA1c improvement in real-world practice.
Methods: We conducted a retrospective cohort study at MacKay Children's Hospital, reviewing patients aged ＜18 years newly diagnosed with T1D between January 1, 2019, and December 31, 2023. The primary outcome was HbA1c trajectory after T1D diagnosis. Linear mixed models with random coefficient growth curves assessed trajectories, adjusting for DKA at diagnosis, time, interaction, age, sex,

BMI z-score, fasting C-peptide, parental education (socioeconomic proxy), and insulin delivery method.
Results: Of the 124 participants, 71 (57%) were frequent CGM users, while the other 53 (43%) patients were non CGM users. CGM users were found to younger at the age at diagnosis (6.7 ± 2.8 vs. 10.6 ± 3.8 years, $p < 0.001$) and came from higher socioeconomic families. In adjusted analysis, overall mean HbA1c difference was nonsignificant (estimate: -0.304%, p=0.260). However, CGM users showed significantly faster HbA1c reduction rates: -0.064±0.008 versus -0.030±0.007 monthly (p=0.002), a two-fold increase. School-aged children (6–12 years) using CGM demonstrated four-fold greater improvement (slope: -0.105 vs. -0.023, $p<0.001$).
Conclusions: Although mean HbA1c levels were similar between CGM and non-CGM users, initiating CGM in newly diagnosed pediatric T1D significantly accelerates glycemic improvement trajectories, doubling monthly HbA1c reduction rates. This benefit is robust regardless of socioeconomic status and baseline characteristics, particularly pronounced in school-aged children, advocating for early CGM integration to optimize metabolic outcomes.

101 **Celiac Disease Autoimmunity in Children With Newly Diagnosed Type 1 Diabetes in Taiwan**
台灣新診斷第 1 型糖尿病兒童的乳糜瀉自體免疫

Hui-Fei Sia[1,2], Fu-Sung Lo[1]
Division of Pediatric Endocrinology & Genetics, Linko Chang Gung Memorial Hospital[1]; Department of Pediatrics, Dali Jen-Ai Hospital[2]
謝蕙妃 [1,2]、羅福松 [1]
林口長庚醫院兒童內分泌暨遺傳科 [1]; 大里仁愛醫院兒童內科 [2]

Background: Celiac disease (CD) is a common autoimmune comorbidity in patients with type 1 diabetes (T1D), often presenting without classical gastrointestinal symptoms. Routine serological screening is therefore recommended, yet real-world prevalence varies by population and ethnicity.
Methods: We analyzed anti–tissue transglutaminase IgA (anti-tTG IgA) screening results in 44 patients with newly diagnosed T1D. Demographic variables, age at diabetes onset, and coexistence of other autoimmune markers were reviewed to identify patterns associated with CD seropositivity.
Results: Among the 44 patients, only one individual (2.3%) demonstrated positive anti-tTG IgA, while the remaining 43 patients (97.7%) were seronegative. The seropositive case was a female adolescent with T1D onset during early adolescence. No male patients were anti-tTG IgA positive. There was no apparent association between celiac seropositivity and age at diabetes onset, thyroid autoimmunity, or documented family history of autoimmune disease. The overall seroprevalence observed was lower than that reported in Western T1D populations but within the lower range of values reported in Asian cohorts.
Conclusions: The prevalence of celiac disease–associated autoimmunity in this T1D cohort was low (2.3%), highlighting potential ethnic or regional differences in disease expression. Despite the low yield, routine celiac screening remains clinically important, as affected individuals may be asymptomatic and at risk for growth, nutritional, and metabolic complications. Longitudinal follow-up is warranted to identify patients who may seroconvert over time.

102 **Endocrine Outcomes and Growth Sequelae in Pediatric Intracranial Germ Cell Tumors**
兒童顱內生殖細胞瘤之內分泌後遺症與生長發育評估

Da-Yang Chen[1], Wen-Yu Tsai[2], Shih-Yao Liu[2], Cheng-Ting Lee[2], Yi-Ching Tung[2]
Department of Pediatrics, Chung Shan Medical University Hospital, Taichung, Taiwan[1]; Department of Pediatrics, National Taiwan University Hospital and College of Medicine, National Taiwan University, Taipei, Taiwan[2]
陳大揚 [1]、蔡文友 [2]、劉士嶢 [2]、李正婷 [2]、童怡靖 [2]
中山醫學大學附設醫院兒童部 [1]; 國立台灣大學附設醫院兒童醫院小兒部 [2]

Background: This study aimed to evaluate growth outcomes and longitudinal endocrine changes in pediatric survivors of intracranial germ cell tumors (IGCTs), stratified by pituitary involvement and treatment modalities.
Methods: This retrospective cohort study included patients with intracranial germ cell tumors treated at the pediatric clinic of a medical center between 1988 and 2022. Growth parameters and pituitary hormone deficiencies were assessed before and after treatment. The median follow-up duration was 6.4 years. Bone mineral density (BMD) was evaluated after patients had reached adult height.
Results: A total of 64 patients were enrolled, including 51 with hypothalamic–pituitary involvement (HP group) and 13 without such involvement. Patients in the HP group exhibited a high prevalence of endocrine abnormalities at diagnosis, most commonly growth hormone deficiency (90.2%) and diabetes insipidus (74.5%). Among patients without initial pituitary involvement, newly developed GHD after treatment highlighted the high radiosensitivity of the growth hormone axis. Notably, four patients developed elevated follicle-stimulating hormone levels with low–normal testosterone after treatment, suggesting that chemotherapy regimens may be associated with primary gonadal dysfunction. The final height standard deviation score (SDS) was −0.3 (range, −2.9 to 3.5) in females and −0.7 (range, −2.7 to 1.6) in males, with the poorest height outcomes observed in male patients with β-hCG–secreting tumors. Hypogonadism was identified in 70.5% of patients in the HP group. The median BMD Z-score in adult patients was −0.9 (range, −3.4 to 2.4), with untreated hypogonadism emerging as the leading risk factor.
Conclusions: Comprehensive endocrine surveillance is essential throughout all phases of treatment, given the dynamic and evolving nature of endocrine dysfunction in IGCT survivors. Timely and appropriate hormone replacement therapy plays a crucial role in preserving linear growth and bone health, particularly in patients diagnosed during the prepubertal and pubertal periods.

103 **Impact of Automation Bias on Artificial Intelligence-Assisted Bone Age Assessment: A Randomized Crossover Study**
自動化偏差對人工智慧輔助骨齡評估的影響：隨機交叉研究

Yeong-Seng Yuh[1,2], Yen-Huai Lin[3,4], Tien-Yu Chang[3]
IH MED child growth center[1];Department of Pediatrics, Cheng-Hsin General Hospital [2]、Department of Radiology, Cheng-Hsin General Hospital [3]、School of Medicine,

National Yang Ming Chiao Tung University [4]
喻永生 [1,2]、林彥懷 [3,4]、張天祐 [3]
愛群兒童成長門診 [1]、振興醫院兒童醫學部 [2]、振興醫院影像醫學部 [3]、陽明交通大學學院內科部 [4]

Background: The integration of artificial intelligence (AI) into clinical practice carries the risk of automation bias, whereby clinicians may over-accept erroneous AI outputs. This study investigated the effect of automation bias on AI-assisted bone age assessment among radiologists of different seniority levels.
Methods: Six radiologists of 3-level seniority were invited to participate this randomized crossover study and provided verbal consent to participate. Each radiologist assessed bone age in 200 radiographs with either accurate (true AI) or deliberately altered AI assistance (fake AI). The fake AI outputs were generated by randomizing results from the accurate AI predictions. Radiologists were also asked to indicate whether they trusted or distrusted the AI's predictions. The intra-class correlation coefficient (ICC) for repeated measures of radiologist was calculated for reliability evaluation. The mean absolute difference (MAD) between the radiologists' assessments (with AI assistance) and the ground-truth bone age was calculated for accuracy evaluation. Paired t test was used to compare the MAD of true AI study and fake AI study.
Results: Radiologist (M1) who owned the highest ICC and the lowest MAD without AI assistance was not affected by the discrepancy of true AI and fake AI (P=0.297). Other radiologists were affected by the accuracy of AI information; there were significant difference between MAD with true AI and with fake AI ($P < 0.001$). Radiologist (J2) who owned the lowest ICC and the highest MAD demonstrated consistently high trust in fake AI predictions. Senior radiologists (S1 and S2) showed higher disagree rate than other radiologists even when accurate AI information was provided. In cases where the AI's accurate and inaccurate predictions differed by more than six months, the MAD of bone age assessments was significantly larger when radiologists received inaccurate AI assistance, particularly among junior radiologists.
Conclusions: Reliability and accuracy of BA assessment of radiologists was a major factor influence automation bias. Inexperienced junior radiologist being especially susceptible due to their over-trust the AI data.

104 **Investigating GALNS Gene Variants and Their Role in Mucopolysaccharidosis Type IVA Using a Zebrafish Model**
利用斑馬魚模型研究 GALNS 基因變異及其在黏多醣症第四 A 型中的作用

Hsiang-Yu Lin[1,2,3,4,5], Shuan-Pei Lin[1,2,3,4,6], Cheng-Yung Lin[7], Chih-Kuang Chuang[2], Po-Hsiang Zhang[2], Yuan-Rong Tu[2], Chung-Lin Lee[1,3,4,5], Huai-Jen Tsai[8]
Department of Pediatric Genetics and Metabolism, MacKay Children's Hospital, Taipei, Taiwan[1]; Department of Medical Research, MacKay Memorial Hospital, Taipei, Taiwan[2]; International Rare Disease Center, MacKay Memorial Hospital, Taipei, Taiwan[3]; Department of Medicine, MacKay Medical University, New Taipei City, Taiwan[4]; MacKay Junior College of Medicine, Nursing and Management, Taipei, Taiwan[5]; Department of Infant and Child Care, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan[6]; Institute of Biomedical Sciences, MacKay Medical University, New Taipei City, Taiwan[7]; School of Medicine, Fu-Jen Catholic University, New Taipei City, Taiwan[8]
林翔宇 [1,2,3,4,5]、林炫沛 [1,2,3,4,6]、林正勇 [7]、莊志光 [2]、張柏翔 [2]、塗元榕 [2]、李忠霖 [1,3,4,5]、蔡懷楨 [8]
馬偕兒童醫院兒童遺傳暨新陳代謝科 [1]; 馬偕紀念醫院醫學研究部 [2]; 馬偕紀念醫院國際罕見疾病中心 [3]; 馬偕醫學大學醫學系 [4]; 馬偕醫護管理專科學校 [5]; 國立台北護理健康大學嬰幼兒保育系 [6]; 馬偕醫學大學生物醫學研究所 [7]; 輔仁大學醫學院醫學系 [8]

Background: Mucopolysaccharidosis type IVA (MPS IVA) is an autosomal recessive disease caused by deficiency of N-acetylgalactosamine-6-sulfatase (GALNS), leading to excessive storage of glycosaminoglycans in various tissues and organs. Novel GALNS gene variants were increasingly discovered from newborn screening that remain to be elucidated.
Methods: We employed a loss-of-function strategy by microinjection of morpholino in zebrafish embryos (z-galns-MO) to detect GALNS enzymatic activity and observe the defective phenotypes. Additionally, we used the gain-of-function approach to build an in vivo assay platform to determine the effect of different mutated galns nucleotides on GALNS enzymatic activity to provide a valuable index for determining GALNS variations that might be essential to the occurrence of MPS IVA in humans.
Results: We established a platform for detecting z-Galns enzyme activity in zebrafish embryos and confirmed that the decrease in z-Galns enzyme activity associated with increasing z-galns-MO injection dose, and the proportion of zebrafish embryonic morphological defects also increased with increasing z-galns-MO injection dose. Furthermore, exogenous injection of normal zebrafish z-galns and h-GALNS mRNA both increased z-Galns/GALNS enzyme activity in zebrafish embryos. Conversely, injection of the mRNA containing known human GALNS pathogenic mutation site (H-GALNS-M318R/z-galns-M310R) did not increase z-Galns/H-GALNS enzyme activity in zebrafish embryos, indicating that GALNS mutations result in loss of enzyme activity, similar to that observed in MPS IVA patients. After microinjecting mutated z-galns-N67H, -G80R, -T227K, -T278M, and -A316E mRNAs, corresponding to mutated human GALNS associated with MPS IVA, into zebrafish embryos, no increase in z-Galns enzymatic activity was noted compared with endogenous z-Galns of untreated embryos.
Conclusions: The z-GALNS enzyme activity assay combined with phenotypic observation of mutated-galns-injected zebrafish embryos could serve as an alternative platform for a preliminary assessment of GALNS gene variants identified by newborn screening not yet characterized for their role in MPS IVA.

105 **A Decade of Nationwide Newborn Screening for Mucopolysaccharidoses in Taiwan**
台灣全國性黏多醣症新生兒篩檢之十年經驗

Hsiang-Yu Lin[1,2,3,4,5], Shuan-Pei Lin[1,2,3,4,6], Chung-Lin Lee[1,3,4,5], Chih-Kuang Chuang[2], Ya-Hui Chang[1,3], Yuan-Rong Tu[2], Yun-Ting Lo[3], Dau-Ming Niu[7], Hsiao-Jan Chen[8], Huey-Jane Ho[9]
Department of Pediatric Genetics and Metabolism, MacKay Children's Hospital, Taipei, Taiwan[1]; Department of

Medical Research, MacKay Memorial Hospital, Taipei, Taiwan[2]; International Rare Disease Center, MacKay Memorial Hospital, Taipei, Taiwan[3]; Department of Medicine, MacKay Medical University, New Taipei City, Taiwan[4]; MacKay Junior College of Medicine, Nursing and Management, Taipei, Taiwan[5]; Department of Infant and Child Care, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan[6]; Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan[7]; The Chinese Foundation of Health, Neonatal Screening Center, Taipei, Taiwan[8]; Taipei Institute of Pathology, Neonatal Screening Center, Taipei, Taiwan[9]
林翔宇 [1,2,3,4,5]、林炫沛 [1,2,3,4,6]、李忠霖 [1,3,4,5]、莊志光 [2]、張雅惠 [1,3]、塗元榕 [2]、羅允廷 [3]、牛道明 [7]、陳小然 [8]、何慧珍 [9]
馬偕兒童醫院兒童遺傳暨新陳代謝科 [1]; 馬偕紀念醫院醫學研究部 [2]; 馬偕紀念醫院國際罕見疾病中心 [3]; 馬偕醫學大學醫學系 [4]; 馬偕醫護管理專科學校 [5]; 國立台北護理健康大學嬰幼兒保育系 [6]; 台北榮民總醫院兒童醫學部 [7]; 中華民國衛生保健基金會新生兒篩檢中心 [8]; 台北病理中心新生兒篩檢中心 [9]

Background: Since August 2015, Taiwan has implemented a nationwide newborn screening (NBS) program for mucopolysaccharidoses (MPS). This study investigated its impact on the diagnosis and clinical management of MPS in Taiwanese infants.
Methods: As of March 31, 2025, the nationwide program had screened more than 838,585 infants for MPS I, MPS II, MPS IVA, and MPS VI. First-tier newborn screening was performed exclusively through enzyme activity measurement in dried blood spots (DBS) using tandem mass spectrometry (LC–MS/MS). Confirmatory diagnostic evaluations included quantitative urinary glycosaminoglycan (GAG) analysis by LC–MS/MS, leukocyte enzyme assays, and molecular genetic testing by Sanger sequencing or next-generation sequencing.
Results: A total of 838,585 infants were screened for MPS I, 727,684 for MPS II (including 378,555 males), 351,917 for MPS IVA, and 587,158 for MPS VI. Among the 437 infants referred for confirmatory testing, 7 were diagnosed with MPS I, 14 with MPS II, and 10 with MPS IVA. The corresponding prevalence rates were 0.83, 1.92 (3.77 per 100,000 male live births), and 2.84 per 100,000 live births, respectively. All confirmed cases were asymptomatic at the time of diagnosis. Early intravenous enzyme replacement therapy (ERT) was initiated in three patients with MPS I, eight with MPS II, and six with MPS IVA. In addition, two patients with MPS I and four with MPS II underwent hematopoietic stem cell transplantation (HSCT). Following ERT and/or HSCT, disease-specific enzyme activity and urinary GAG levels showed significant improvement in all treated patients compared with baseline values.
Conclusions: The implementation of the NBS program markedly reduced the median age at diagnosis from 4.3 years to 0.2 years and enabled early interventions, including ERT and HSCT, which can prevent irreversible complications. In addition, the program facilitated the identification of novel MPS-related variants in Taiwanese infants, thereby advancing both diagnostic and therapeutic strategies. Collectively, these findings highlight the clinical value of early screening for rare genetic disorders and support the adoption of similar programs in other regions.

106 **Skipping the Biopsy: Real-world Experience of WES as First-tier Testing in Pediatric Muscular Disorders**
跳過肌肉切片直攻基因：全外顯子定序作為兒童肌肉疾病首選檢查的實戰經驗

Chung-Lin Lee[1,2,3,4,5], Chih-Kuang Chuang[6,7], Huei-Ching Chiu[1], Ya-Hui Chang[1,3], Yuan-Rong Tu[6], Yun-Ting Lo[3], Jun-Yi Wu[3], Hsiang-Yu Lin[1,3,4,5,6,8], Shuan-Pei Lin[1,3,4,6,9]
Department of Pediatrics, MacKay Memorial Hospital, Taipei, Taiwan[1]; Institute of Clinical Medicine, National Yang-Ming Chiao-Tung University, Taipei, Taiwan[2]; International Rare Disease Center, MacKay Memorial Hospital, Taipei, Taiwan[3]; Department of Medicine, Mackay Medical College, New Taipei City, Taiwan[4]; Mackay Junior College of Medicine, Nursing and Management, Taipei, Taiwan[5]; Division of Genetics and Metabolism, Department of Medical Research, MacKay Memorial Hospital, Taipei, Taiwan[6]; College of Medicine, Fu-Jen Catholic University, Taipei, Taiwan[7]; Department of Medical Research, China Medical University Hospital, China Medical University, Taichung, Taiwan[8]; Department of Infant and Child Care, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan[9]
李忠霖 [1,2,3,4,5]、莊志光 [6,7]、邱慧菁 [1]、張雅惠 [1,3]、塗元榕 [6]、羅允廷 [3]、吳君儀 [3]、林翔宇 [1,3,4,5,6,8]、林炫沛 [1,3,4,6,9]
台北馬偕醫院小兒科 [1]; 陽明交通大學臨床醫學研究所 [2]; 台北馬偕醫院罕見疾病中心 [3]; 馬偕醫學院 [4]; 馬偕醫護管理專科學校 [5];馬偕醫院醫學研究部生化遺傳研究組 [6]; 輔仁大學醫學院 [7]; 中國醫藥大學附設醫院醫學研究部 [8]; 臺北護理健康大學嬰幼兒保育系所 [9]

Background: Muscle biopsy has traditionally been essential for diagnosing pediatric muscular disorders, but it is invasive and may yield inconclusive results. We investigated whether whole exome sequencing (WES) could serve as an effective first-tier diagnostic tool, bypassing the need for muscle biopsy.
Methods: From January 2018 to December 2025, we enrolled 46 pediatric patients (median age 5.9 years) with clinically suspected muscular dystrophies (n=21) or congenital myopathies (n=22), plus 3 MLPA-negative Duchenne muscular dystrophy cases. All patients proceeded directly to WES without prior muscle biopsy. Trio-based WES was performed in 30.4% of cases. Variants were classified using ACMG guidelines.
Results: WES achieved an overall diagnostic yield of 65.2% (30/46 patients), with 100% (3/3) in MLPA-negative DMD, 57.1% (12/21) in muscular dystrophies, and 68.2% (15/22) in congenital myopathies. Thirty pathogenic variants across 28 genes were identified. Notably, 66.6% of diagnosed patients (20/30) had genetic findings inconsistent with their initial clinical diagnosis, including ZSWIM6-related neurodevelopmental disorders (n=2), deafness (GJB2), and Lowe syndrome (OCRL). This approach enabled targeted therapy initiation in DMD patients with point mutations and avoided invasive procedures in all cases.
Conclusions: WES as first-tier testing provides high diagnostic yield while eliminating the need for muscle biopsy in pediatric muscular disorders. The high rate of diagnostic reclassification underscores the phenotypic overlap between neuromuscular and neurological conditions, supporting early genetic testing to guide precision medicine.

107 **Limitations of DXA and the Diagnostic Value of P1NP and CTx in Patients with Rare Musculoskeletal Disorders and Skeletal Deformities.**
罕見肌肉骨骼疾病個案之 DXA 限制與骨代謝指標（P1NP 與 CTx）之診斷價值研究

Da-Yang Chen[1], Wen-Chin Weng[2,4], Meng-Ju Tsai[2], Hui-An Chen[2], Rai-Hseng Hsu[3], Ni-Chung Lee[2,3], Yin-Hsiu Chien[2,3], Wuh-Liang Hwu[2,3,5]
Department of Pediatrics, Chung Shan Medical University Hospital, Taichung, Taiwan[1]; Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan[2]; Department of Medical Genetics, National Taiwan University Hospital, Taipei, Taiwan[3]; Department of Pediatrics, National Taiwan University College of Medicine, Taipei, Taiwan[4]; Center for Precision Medicine, China Medical University Hospital, China Medical University, Taichung, Taiwan[5]
陳大揚[1]、翁奴謹[2,4]、蔡孟儒[2]、陳薈安[2]、徐瑞聲[3]、李妮鍾[2,3]、簡穎秀[2,3]、胡務亮[2,3,5]
中山醫學大學附設醫院兒童部[1]; 國立台灣大學附設醫院兒童醫院小兒部[2]; 國立台灣大學附設醫院基因醫學部[3]; 國立台灣大學醫學院醫學系小兒科[4]; 中國醫藥大學附設醫院精準醫療中心[5]

Background: Assessing bone health in rare diseases via dual-energy X-ray absorptiometry (DXA) is often limited by confounding factors like skeletal degeneration and calcification, which may lead to overestimated bone density. Consequently, current fracture prevention strategies remain reactive rather than proactive. We aimed to analyze bone turnover markers (BTMs) in these populations to determine their clinical significance and their ability to supplement bone mineral density (BMD) in predicting disease course and fracture risk.
Methods: This retrospective study enrolled patients with rare musculoskeletal diseases undergoing regular follow-up at National Taiwan University Children's Hospital between 2022 and 2025. Patients were included if they had serum procollagen type I N-propeptide (P1NP) and C-terminal telopeptide of type I collagen (CTx) measurements; corresponding DXA data were required to be within the same timeframe.
Results: A total of 178 patients were enrolled, comprising 80 with spinal muscular atrophy (SMA), 48 with Duchenne muscular dystrophy (DMD), 26 with glycogen storage disease (GSD), and 24 with osteogenesis imperfecta (OI). P1NP levels in the OI group, particularly among pediatric patients, were significantly lower than those in the other three disease groups ($P < 0.001$). Despite these differences in absolute levels, a strong positive correlation (SMA: r=0.8983, DMD: r=0.8903, OI: r=0.9029, GSD: r=0.6638) was observed between P1NP and CTx ($P < 0.001$), with consistent regression slopes across all four groups. Notably, multiple regression analysis revealed that bone turnover markers (BTMs) correlated poorly with DXA measurements, suggesting that the diagnostic utility of DXA may be hindered by confounding factors such as skeletal deformities or degenerative changes in these rare conditions.
Conclusions: P1NP and CTx maintain a consistent metabolic relationship across different rare musculoskeletal diseases, and their poor correlation with BMD highlights the limitations of DXA in these populations. BTMs, particularly in OI, provide independent physiological insights that are essential for a more accurate assessment of bone health in patients with complex skeletal deformities.

108 **Impact of Early Intervention Timing on Functional Development in Children With Achondroplasia: A Taiwanese Multicenter Study**
軟骨發育不全症兒童早期療育介入時機對功能發展之影響：台灣多中心研究

Chung-Lin Lee[1,2,3,4,5], Chih-Kuang Chuang[6,7], Huei-Ching Chiu[1], Ya-Hui Chang[1,3], Yuan-Rong Tu[6], Yun-Ting Lo[3], Jun-Yi Wu[3], Hsiang-Yu Lin[1,3,4,5,6,8], Shuan-Pei Lin[1,3,4,6,9]
Department of Pediatrics, MacKay Memorial Hospital, Taipei, Taiwan[1]; Institute of Clinical Medicine, National Yang-Ming Chiao-Tung University, Taipei, Taiwan[2]; International Rare Disease Center, MacKay Memorial Hospital, Taipei, Taiwan[3]; Department of Medicine, Mackay Medical College, New Taipei City, Taiwan[4]; Mackay Junior College of Medicine, Nursing and Management, Taipei, Taiwan[5]; Division of Genetics and Metabolism, Department of Medical Research, MacKay Memorial Hospital, Taipei, Taiwan[6]; College of Medicine, Fu-Jen Catholic University, Taipei, Taiwan[7]; Department of Medical Research, China Medical University Hospital, China Medical University, Taichung, Taiwan[8]; Department of Infant and Child Care, National Taipei University of Nursing and Health Sciences, Taipei, Taiwan[9]
李忠霖[1,2,3,4,5]、莊志光[6,7]、邱慧菁[1]、張雅惠[1,3]、塗元榕[6]、羅允廷[3]、吳君儀[3]、林翔宇[1,3,4,5,6,8]、林炫沛[1,3,4,6,9]
台北馬偕醫院小兒科[1]; 陽明交通大學臨床醫學研究所[2]; 台北馬偕醫院罕見疾病中心[3]; 馬偕醫學院[4]; 馬偕醫護管理專科學校[5];; 馬偕醫院醫學研究部生化遺傳研究組[6]; 輔仁大學醫學院[7]; 中國醫藥大學附設醫院醫學研究部[8]; 臺北護理健康大學嬰幼兒保育系所[9]

Background: Achondroplasia affects approximately 1 in 25,000 births and presents unique developmental challenges. While early intervention is widely recommended, limited data exist regarding optimal timing and intensity of therapeutic services. This study examined the relationship between early intervention parameters and functional outcomes in Taiwanese children with achondroplasia.
Methods: We conducted a multicenter cross-sectional study involving 46 children and adolescents (ages 6-18 years) with confirmed achondroplasia from ten medical centers across Taiwan between 2021-2024. Functional independence was assessed using the WeeFIM scale. Early intervention data including initiation age, therapy duration, and service intensity were collected through standardized questionnaires. Multiple regression analysis identified factors associated with functional outcomes.
Results: Among 46 participants (mean age 13.8±3.6 years), 38 (82.6%) received early intervention services. Children who initiated therapy before age 2 years demonstrated significantly higher total WeeFIM scores compared to later starters (118.3±12.5 vs. 112.1±16.8, $p=0.042$). Earlier therapy initiation ($\beta=-0.32$, $p=0.039$) and longer physical therapy duration ($\beta=0.31$, $p=0.032$) independently predicted better functional outcomes. The beneficial effect was most pronounced in mobility domain (32.1±4.1 vs. 27.8±5.4, $p=0.018$). Age at assessment ($\beta=0.71$, $p < 0.001$) and early intervention participation

(β=0.38, p=0.022) were the strongest predictors. The regression model explained 76% of variance in functional outcomes (R^2=0.76, F=28.7, p＜0.001).

Conclusions: Earlier initiation and sustained duration of early intervention services, particularly physical therapy, are associated with superior functional outcomes in children with achondroplasia. These findings support implementing comprehensive early intervention programs before age 2 years for optimal developmental outcomes. Establishing standardized early intervention protocols may improve long-term functional independence in this population.

109 **Safety of Avalglucosidase Alfa Initiation in Infants Younger Than Six Months with Infantile-Onset Pompe Disease: A Single-Center Experience**

六個月以下嬰兒型龐貝氏症患者使用 Avalglucosidase alfa 之安全性評估：單中心回溯性研究

Hung-Hsiang Fang[1,2], Hui-An Chen[1,3,4], Rai-Hseng Hsu[1,3,4], Meng-Ju Tsai[1,3,4], Ni-Chung Lee[1,3,4], Wuh-Liang Hwu[1,3,5], Shao-Yin Chu[6,7], Yen-Yin Chou[8], Yin-Hsiu Chien[1,3,4*]

Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan[1]; Department of Pediatrics, Tri-Service General Hospital, National Defense Medical University, Taipei, Taiwan[2]; Department of Medical Genetics, National Taiwan University Hospital, Taipei, Taiwan[3]; Department of Pediatrics, National Taiwan University College of Medicine, Taipei, Taiwan [4]; Center for Precision Medicine, China Medical University Hospital, Taichung, Taiwan [5]; Department of Pediatrics, Buddhist Tzu Chi General Hospital, Hualien, Taiwan [6]; Department of Medicine, College of Medicine, Tzu Chi University, Hualien, Taiwan [7]; Department of Pediatrics, National Cheng Kung University Hospital, National Cheng Kung University, Tainan, Taiwan [8];

方泓翔 [1,2]、陳薈安 [1,3,4]、徐瑞聲 [1,3,4]、蔡孟儒 [1,3,4]、李妮鍾 [1,3,4]、胡務亮 [1,3,5]、朱紹盈 [6,7]、周言穎 [8]、簡穎秀 [1,3,4*]

臺大醫院小兒部 [1]; 三軍總醫院小兒科部 [2]; 臺大醫院基因醫學部 [3]; 台灣大學醫學院小兒科 [4]; 中國醫藥大學附設醫院精準醫學中心 [5]; 花蓮慈濟醫院小兒部 [6]; 慈濟大學醫學院醫學系 [7]; 國立成功大學附設醫院小兒部 [8];

Background: Avalglucosidase alfa (AVA) is a glycoengineered recombinant human acid α-glucosidase (GAA) designed to restore deficient enzyme activity in patients with Pompe disease aged 6 months and older in Taiwan. We report here the efficacy and safety of AVA in infants with infantile-onset Pompe disease (IOPD) who were aged equal or younger than 6 months at treatment initiation.

Methods: The retrospective cohort study included 6 infants (4 males, 2 females) with confirmed IOPD who began AVA treatment in the newborn period. Safety outcomes included infusion-associated reactions (IARs), infusion completion, premedication requirements, and serious adverse events (SAEs). Cardiac and biomarkers outcomes comprised left ventricular mass index (LVMI), creatine kinase (CK) and urinary glucose tetrasaccharide (Glc4). Clinical outcomes included ventilator dependence, survival, and motor development.

Results: All patients were diagnosed through newborn screening (NBS) and received the first recombinant human GAA infusion at a median age of 8 days (7-12). All were cross-reactive immune material (CRIM)-positive. Echocardiography demonstrated hypertrophic cardiomyopathy in all patients, with LVMI ranging from 100 to 182 g/m² (normal ＜52), while systolic function was preserved (EF 57.3-77.9%; FS 27.6-43.8%). Baseline biochemical markers were elevated, with CK ranging from 540 to 1,048 U/L and urinary Glc4 concentrations from 24.0 to 57.0. AVA was initiated at a dose of 40 mg/kg qow at a median age of 16 days (8-27), three being treatment naïve (starting at age 8-12 days) while three had received 2 doses of aglucosidase alfa prior to AVA. Patients were followed for a median of 2.2 years (0.2-4.4). At last follow-up, all were alive and free from invasive ventilator, with improvements observed in LVMI and biochemical markers. AVA infusions were completed as planned with routine antihistamine premedication. No infusion interruptions, acute IARs, or SAEs were observed.

Conclusions: Initiation of AVA in infants younger than six months was well tolerated, with no early safety concerns or SAEs observed. Clinical, cardiac, and biomarker improvements were evident, even in the presence of baseline hypertrophic cardiomyopathy.

110 **Improvement of Airway Abnormalities and Multifaceted Clinical Outcomes After Switching to Avalglucosidase Alfa in Late-Onset Pompe Disease: A Real-World Case Series**

Avalglucosidase Alfa 治療轉換後晚發型龐貝氏症之氣道異常改善與多層面臨床結果分析：真實世界病例分析

Zhi-Hong Chung[1], Hai-Ning Tian[1], Yun-Jung Huang[1], Dau-Ming Niu[1,2], Chia-Feng Yang[1,2], Yann- Jang Chen[1,2,3]

Division of Pediatric Genetics and Endocrinology, Department of Pediatrics, Taipei Veterans General Hospital[1]; College of Medicine, National Yang Ming Chiao Tung University[2]; Institute of Clinical Medicine, National Yang Ming Chiao Tung University[3]

鍾志宏 [1]、田海寧 [1]、黃韻融 [1]、牛道明 [1,2]、楊佳鳳 [1,2]、陳燕彰 [1,2,3]

台北榮民總醫院兒童醫學部兒童遺傳內分泌科 [1]; 國立陽明交通大學醫學院 [2]; 陽明交通大學臨床醫學研究所 [3]

Background: Late-onset Pompe disease (LOPD) is characterized by progressive myopathy and respiratory involvement. Although enzyme replacement therapy (ERT) with alglucosidase alfa improves survival and motor outcomes, its long-term respiratory efficacy may decline. Avalglucosidase alfa, a next-generation ERT with enhanced mannose-6-phosphate receptor–mediated uptake, has demonstrated improved functional outcomes; however, real-world evidence focusing on anatomical airway abnormalities remains limited.

Methods: This case series included three patients with LOPD who were switched from alglucosidase alfa to avalglucosidase alfa. Clinical performance was evaluated using a multifaceted approach, including flexible bronchoscopy (FB), polysomnography (PSG), pulmonary function testing, motor function and endurance assessments, and disease-specific biomarkers.

Results: During treatment with alglucosidase alfa, all patients demonstrated airway abnormalities on FB, including varying degrees of oropharyngeal and/or nasal

airway narrowing; tracheomalacia was observed in a subset of patients. After switching to avalglucosidase alfa, follow-up FB examinations showed improved airway patency in most patients, with reduced upper airway collapse and improved dynamic airway stability. PSG parameters demonstrated improvement or stabilization, including reduced apnea–hypopnea index and improved nocturnal ventilation indices. Pulmonary function tests remained stable during follow-up. Functional assessments revealed improved activity endurance and core muscle strength, while gross motor function remained stable. Body mass index showed gradual improvement. Biochemical markers, including creatine kinase and urinary glucose tetrasaccharide (Glc4), demonstrated decreasing or stabilizing trends after the therapy switch.
Conclusions: This case series provides the first anatomical evidence, confirmed by flexible bronchoscopy, of improved airway abnormalities after switching from alglucosidase alfa to avalglucosidase alfa in patients with LOPD. These findings support the potential role of avalglucosidase alfa in improving respiratory, functional, and metabolic outcomes during long-term disease management.

111 **Long-Scale Real-World Outcomes of Nexviazyme Treatment in Very Early Treated Infantile-Onset Pompe Disease: Multidisciplinary Perspective of 30-Month Switching Experience**
Nexviazyme 治療極早期治療嬰兒型龐貝病的長期真實世界結果：30 個月轉換經驗的多方向觀點

Hai-Ning Tian[1,2], Zhi- Hong Chung[1,3], Yun-Jung Huang[1], Dau-Ming Niu[1,4,5,6], Yann-Jang Chen[1,4,5,6], Chia-Feng Yang[1,4]
Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan[1];Department of Pediatrics, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan[2];Department of Pediatrics, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[3];Genetic Consultant Center Rare Disease Medical Research Center, Taipei Veterans General Hospital, Taipei, Taiwan[4];School of Medicine, College of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan[5];Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan[6]
田海寧 [1,2]、鍾志宏 [1,3]、黃韻融 [1]、牛道明 [1,4,5,6]、陳燕彰 [1,4,5,6]、楊佳鳳 [1,4,5]
台北榮民總醫院兒童醫學部 [1];戴德森醫療財團法人 嘉義基督教醫院 兒童醫學部 [2];高雄榮民總醫院 兒童醫學部 [3];臺北榮民總醫院罕見疾病研究治療中心 [4];國立陽明交通大學 醫學院 [5];陽明交通大學臨床醫學研究所 [6]

Background: Pompe disease (PD) is an autosomal recessive disorder caused by a deficiency of acid α-glucosidase (GAA), which results in glycogen accumulation and multisystemic involvement. Early initiation of enzyme replacement therapy (ERT), before irreversible damage occurs, is critical. ERT has been approved for PD treatment since 2006, and avalglucosidase alfa (AVA) was approved for use in PD patients aged over 6 months in Taiwan in January 2022. Based on our patient cohort, the implementation of rapid diagnostic and treatment strategies for infantile-onset Pompe disease (IOPD) enables affected infants to receive their first dose of ERT within approximately 10 days after birth. In this study, we present our 30-month real-world experience of switching all very early-treated patients to AVA and analyze clinical outcomes.
Methods: In this longitudinal follow-up study, clinical outcomes were evaluated in patients with IOPD who initiated ERT at a very early stage after identification through Taiwan's nationwide newborn screening program. Total 32 were included in this study. Long-term treatment outcomes were assessed from a multidisciplinary perspective, along with our real-world 30-month experience switching ERT to AVA.
Results: The mean age at initiation of ERT was 9.83 ± 4.65 days. Patients switched from alglucosidase alfa (AGL) to AVA at a mean age of 5.53 ± 4.17 years, with a mean AVA treatment duration of 2.14 ± 0.69 years thus far. Our cohort demonstrated favorable biochemical and clinical outcomes after switching to AVA. No significant infusion-associated reactions were observed following the switch.
Conclusions: This study underscored the importance of very early ERT initiation and suggests that switching to next-generation treatment might contribute to better long-term outcomes in IOPD patients.

112 **The Spectrum of Hypophosphatasia: Insights from Molecular Newborn Screening**
從新生兒分子篩檢探討低磷酸酶症的表現光譜

Rai-Hseng Hsu[1,2,3], Meng-Ju Melody Tsai[1,2,3], Hui-An Chen[1,2,3], Yin-Hsiu Chien[1,2,3], Wuh-Liang Hwu[1,2,4], Ni-Chung Lee[1,2,3]
Department of Medical Genetics[1] and Department of Pediatrics[2], National Taiwan University Hospital; Department of Pediatrics, National Taiwan University College of Medicine[3]; Center for Precision Medicine, China Medical University Hospital[4]
徐瑞聲 [1,2,3]、蔡孟儒 [1,2,3]、陳薈安 [1,2,3]、簡穎秀 [1,2,3]、胡務亮 [1,2,4]、李妮鍾 [1,2,3]
國立台灣大學醫學院附設醫院基因醫學部 [1]、小兒部 [2];國立台灣大學醫學院小兒科 [3]; 中國醫藥大學附設醫院精準醫學中心 [4]

Background: Hypophosphatasia (HPP) is a rare inherited metabolic disorder caused by variants in the ALPL gene, resulting in deficiency of alkaline phosphatase (ALP) which leads to defective mineralization of bone and teeth. The clinical spectrum of HPP is broad, ranging from the perinatal lethal form to isolated dental involvement. Given the phenotypic heterogeneity and potential for late-onset disease, molecular newborn screening may facilitate early identification of affected individuals and enable timely clinical evaluation and family counseling.
Methods: From August 2024 to November 2025, a total of 1,869 newborns underwent molecular newborn screening including analysis of the ALPL gene. Newborns identified with either (1) one pathogenic or likely pathogenic (P/LP) ALPL variants with autosomal dominant inheritance or, or (2) two P/LP variants were recalled for confirmatory biochemical testing and/ or family study when indicated.
Results: Sixteen newborns were found to carry a heterozygous P/LP variant in ALPL. Based on previous reported inheritance patterns, eleven were recalled for further confirmation. None of the recalled newborns demonstrated serum ALP levels below age-specific reference range. Clinical and family assessments revealed autosomal dominant inheritance in seven families. Among these, two families presented odonto type manifestations, three showed adult-type features with short stature, and two

families with one parent exhibited persistently low serum ALP levels. Four were found no contributory family history or clinical features suggestive of hypophosphatasia. The remaining five newborns were classified as heterozygous carriers with a P/LP variant considered to be associated with autosomal recessive HPP.
Conclusions: Molecular newborn screening incorporating ALPL gene analysis identified multiple newborns with potential HPP-related variants, including individuals with dominant inheritance pattern and asymptomatic carriers. These findings highlighted the importance of integrating molecular data with biochemical evaluation and family study to accurately interpret disease significance. The approach enables early detection, appropriate monitoring, and timely treatment.

113 **Delayed Cortisol Response to Insulin-Induced Hypoglycemia in Prader–Willi Syndrome: A Center's Experience in Taiwan**
普瑞德威利症候群於胰島素誘發低血糖測試中呈現延遲的皮質醇反應：台灣單一中心經驗

Yu-Hsin Lai[1], Tsung-Ying Ou[2,3,4], Siew-Yin Chee[1], Li-Ping Tsai[1,5]
Department of Pediatrics, Taipei Tzu Chi Hospital, New Taipei, Taiwan[1]; Department of Pediatrics, Wuri Lin Shin Hospital, Taichung, Taiwan[2]; Department of Pediatrics, Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Chiayi, Taiwan[3]; Department of Genomic Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan[4]; Department of Pediatrics, Taipei City Hospital Heping Fuyou Branch, Taipei Taiwan [5]
賴郁欣 [1]、歐宗穎 [2,3,4]、謝秀盈 [1]、蔡立平 [1,5]
佛教慈濟醫療財團法人台北慈濟醫院小兒科 [1];烏日林新醫院小兒科 [2];佛教慈濟醫療財團法人大林慈濟醫院小兒科 [3]; 國立成功大學醫學院附設醫院基因醫學部 [4];臺北市立聯合醫院和平婦幼院區小兒科 [5]

Background: The prevalence of central adrenal insufficiency (CAI) in individuals with Prader–Willi syndrome (PWS) remains controversial, largely due to heterogeneity in stimulation tests and diagnostic criteria. Data derived from the insulin tolerance test (ITT), the gold standard for hypothalamic–pituitary–adrenal (HPA) axis evaluation, are limited.
Methods: We retrospectively reviewed ITTs performed in patients with genetically confirmed PWS at Taipei Tzu Chi Hospital between 2001 and 2010. Clinical characteristics, genotype, growth hormone (GH) treatment status, and cortisol responses to hypoglycemic stress were analyzed. Cortisol dynamics were assessed serially following insulin-induced hypoglycemia.
Results: Twenty patients with PWS were included. The median basal serum cortisol level was 20 μg/dL (interquartile range [IQR], 14–25 μg/dL), and the median peak cortisol level was 34 μg/dL (IQR, 30–37 μg/dL). All patients achieved an adequate peak cortisol response ($>$ 18.1 μg/dL), indicating a 0% prevalence of CAI. However, peak cortisol levels were delayed, occurring predominantly at 90–120 minutes after stimulation.
Conclusions: Central adrenal insufficiency appears to be rare in patients with PWS when assessed using the ITT. Nevertheless, a delayed cortisol response suggests altered HPA-axis responsiveness to stress, likely reflecting hypothalamic dysfunction rather than true adrenal failure.

114 **Immune and Complement Alterations Associated with Lysosomal Enzyme Deficiency in Pediatric Gaucher Disease**
兒童高雪氏症之溶小體酵素缺乏與補體調控變化

You-Yen Lin, Chung-Hsing Wang
Division of Medical Genetics, Pediatric Endocrinology and Metabolism, China Medical University Hospital
林祐延、王仲興
中國醫藥大學附設醫院醫學遺傳暨兒童新陳代謝內分泌科

Background: Gaucher disease (GD) is a childhood-onset lysosomal storage disorder caused by mutations in the GBA1 gene, leading to glucocerebrosidase (GCase) deficiency and accumulation of glycosphingolipids. In addition to systemic manifestations, increasing evidence suggests that lysosomal dysfunction in GD is associated with immune dysregulation and chronic inflammation, which may contribute to long-term neurological vulnerability. However, the involvement of the complement system in pediatric GD remains insufficiently characterized.
Methods: Cellular models with GBA1 deficiency were used to assess lysosomal enzyme activity and downstream immune-related alterations. GCase activity was measured to confirm lysosomal dysfunction. The expression of complement-related proteins and immune regulatory markers was analyzed using immunoblotting and molecular assays. In parallel, pharmacological intervention with statins was applied to evaluate their potential modulatory effects on complement regulatory pathways in the context of lysosomal enzyme deficiency.
Results: GBA1-deficient models demonstrated significantly reduced GCase activity, accompanied by lysosomal dysfunction and altered expression of complement-associated immune markers. Increased complement activation signals were observed in association with enzyme deficiency. Statin treatment partially modulated complement regulatory protein expression and attenuated immune activation linked to lysosomal dysfunction.
Conclusions: Lysosomal enzyme deficiency in pediatric Gaucher disease is associated with immune and complement dysregulation, suggesting a mechanistic link between metabolic storage abnormalities and inflammatory signaling. These findings highlight complement modulation as a potential therapeutic target and support the translational relevance of immune-directed strategies for improving long-term neurological outcomes in children with lysosomal storage disorders.

115 **Germline Cancer Predisposition Genes in Patients with Osteosarcoma: A Single-Center Retrospective Study in Taiwan**
台灣骨肉瘤患者之遺傳性癌症易感基因：單一醫學中心回溯性研究

Yun-Jung Huang[1], Hai-Ning Tian[1,2], Zhi-Hong Chung[1,3], Ming-Hsin Hou[1], Chih-Ying Lee[1], Hsiu-Ju Yen[1], Chia-Feng Yang[1,4,5], Dau-Ming Niu[1,4,5], Yann-Jang Chen[1,4,5]
Department of Pediatrics, Taipei Veterans General Hospital, Taipei, Taiwan[1];Department of Pediatrics, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chia-Yi, Taiwan[2];Department of Pediatrics, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[3]; School of Medicine, College of Medicine, National Yang Ming Chiao Tung

University, Taipei, Taiwan[4]; Genetic Consultant Center Rare Disease Medical Research Center, Taipei Veterans General Hospital, Taipei, Taiwan[5]
黃韻融[1]、田海寧[1,2]、鍾志宏[1,3]、侯明欣[1]、李致穎[1]、顏秀如[1]、楊佳鳳[1,4,5]、牛道明[1,4,5]、陳燕彰[1,4,5]
臺北榮民總醫院 兒童醫學部[1];戴德森醫療財團法人 嘉義基督教醫院 兒童醫學部[2];高雄榮民總醫院 兒童醫學部[3];國立陽明交通大學 醫學院[4];臺北榮民總醫院罕見疾病研究治療中心[5]

Background: Osteosarcoma predominantly affects children and adolescents, and a subset has been associated with germline cancer predisposition syndromes (CPS). However, data on the prevalence and clinical relevance of cancer predisposition genes in Asian osteosarcoma patients remain limited.
Methods: We retrospectively reviewed patients diagnosed with osteosarcoma who underwent germline next-generation sequencing at Taipei Veterans General Hospital between January 2021 and December 2025. A predefined panel of 114 cancer predisposition genes was curated based on a literature review. Pathogenic and likely pathogenic variants were classified according to ClinVar annotations and the American College of Medical Genetics and Genomics (ACMG) criteria. Clinical characteristics and outcomes were compared between patients with and without CPS.
Results: A total of 30 patients with osteosarcoma were included. Pathogenic or likely pathogenic germline variants were identified in 4 patients (13%), involving three genes: TP53, RB1, and CDH1. All patients in the CPS group were female. Patients with CPS tended to be diagnosed at a younger age than those without CPS (median age, 14.0 vs. 18.0 years), while the overall median age at diagnosis was 15 years (range, 5.5–40.9 years). A higher proportion of patients in the CPS group had a personal history of multiple primary malignancies (2 of 4 patients, 50%), compared with the non-CPS group (1 of 26 patients, 3.8%); however, this difference did not reach statistical significance. No significant differences were observed between the CPS and non-CPS groups with respect to disease stage at diagnosis, tumor size, histologic response to neoadjuvant chemotherapy, or survival outcomes.
Conclusions: Germline cancer predisposition syndromes were identified in a clinically meaningful proportion of patients with osteosarcoma. Clinical presentation alone was insufficient to reliably identify patients harboring underlying germline cancer predisposition genes. Given the elevated risk of multiple primary malignancies in this population, early identification of CPS through germline genetic testing may facilitate risk-adapted surveillance strategies and inform therapeutic decision-making.

116 **Clinical Management of Urea Cycle Disorders: A Single-Center Experience**
尿素循環障礙之臨床照護與治療成效：單一醫學中心經驗

Hui-An Chen[1,2], Rai-Hseng Hsu[1,2], Meng-Ju Melody Tsai[1,2], Pao-Chin Chiu[3], Wuh-Liang Hwu[1,4], Ni-Chung Lee[1,2], Yin-Hsiu Chien[1,2]
Department of Medical Genetics[1], Department of Pediatrics[2], National Taiwan University Hospital; Division of Pediatrics, Kaohsiung Medical University Gangshan Hospital[3]; Center for Precision Medicine, China Medical University Hospital[4]
陳薈安[1,2]、徐瑞聲[1,2]、蔡孟儒[1,2]、邱寶琴[3]、胡務亮[1,4]、李妮鍾[1,2]、簡穎秀[1,2]
國立臺灣大學醫學院附設醫院基因醫學部[1]、小兒部[2]；高雄醫學大學附設高醫岡山醫院小兒科[3]；中國醫藥大學附設醫院精準醫療中心[4]

Background: Urea cycle disorders (UCDs) are rare inherited diseases that impair ammonia detoxification. Although protein-restricted diets and nitrogen-scavenging agents have been widely used in Taiwan, systematic data describing disease burden and treatment benefit remain limited. We therefore conducted a retrospective cohort study to evaluate the clinical and biochemical outcomes.
Methods: We retrospectively reviewed all UCD patients managed at NTUH between Jan 1, 1996, and Dec 31, 2025. Thirty-six patients were identified, with a mean age of 17.2 years (range 0.9–50). Patients lost to follow-up (n=6) or expired (n=2) were excluded from outcome analysis. Collected data included demographics, molecular diagnosis, dietary protein intake, plasma ammonia, and amino acid profiles. Biochemical changes 6 months after switching from sodium phenylbutyrate (NaPBA) to glycerol phenylbutyrate (GPB) were also evaluated.
Results: Among the 36 patients, 7 (19.4%) had neonatal-onset disease and 29 (80.6%) had late-onset UCD. Eight patients (22.2%) experienced hyperammonemic crises requiring hemodialysis at a median age of 13 days (range 3 days–11 months), and five patients (13.9%) underwent liver transplantation at a median age of 3 years (range 1.2–4.2 years). At last follow-up, neurological involvement was observed in 7 of 28 evaluable patients (25%), and was more frequent in neonatal-onset than late-onset cases (40% vs. 21.7%). In non-transplanted patients, long-term management consisted of individualized protein restriction and nitrogen-scavenging therapy, with a median protein intake of 1.1 g/kg/day. NaPBA remained the most commonly used agent at a median dose of 172 mg/kg/day (range 75–225). Seven patients received GPB, including 1 treatment-naïve patient and 6 who transitioned from NaPBA. Compared with NaPBA, switching to GPB was associated with stable ammonia control and reduced branched-chain amino acid depletion.
Conclusions: Our experience demonstrates that multidisciplinary, individualized management enables effective metabolic control in UCD patients. Regular biochemical monitoring and tailored nutritional strategies remain essential for optimizing long-term outcomes.

117 **Could one modulation of AAV-mediated gene therapy achieve complete rescue of phenotype and pathogenesis in Globoid cell leukodystrophy**
單獨基因治療能否達到球狀細胞腦白質退化症的全面治療

Dar-Shong Lin[1,2,3], Che-Shen Ho[3,4]
Department of Translational Medicine, MacKay Memorial Hospital, Taipei, Taiwan[1]; Department of Pediatric Genetics, MacKay Memorial Hospital, Taipei, Taiwan[2]; Department of Medicine, MacKay Medical University, New Taipei, Taiwan[3]; Department of Neurology, MacKay Children's Hospital, Taipei, Taiwan[4]
林達雄[1,2,3]、何啟生[3,4]
轉譯醫學科[1]、遺傳科, 馬偕紀念醫院[2]; 醫學系，馬偕醫學大學[3]; 神經科，馬偕兒童醫院[4];

Background: Globoid cell leukodystrophy (GLD) is a fatal lysosomal storage disorder caused by GALC deficiency, resulting in psychosine accumulation, neuroinflammation, progressive demyelination, and early mortality. Over the past two decades, preclinical studies in Twitcher mice have employed CNS-directed AAV vectors, systemic delivery, and increasingly complex combination strategies incorporating BMT and substrate reduction therapy (SRT). Although these approaches incrementally extended survival, still failed to achieve durable CNS–PNS correction or near-normal lifespan.
Methods: We performed a comparative meta-analysis of survival, motor function, and histopathological outcomes across distinct therapeutic eras (2005-2025) in GLD research, utilizing data from the published studies related to AAV-mediated gene therapy with or without combination therapies.
Results: (1) Historical monotherapies extended median survival to only 50–70 days. The addition of BMT and multi-route delivery pushed this to ~100–300 days. The highly complex Triple Therapy achieved a median of 404 days. Remarkably, the AAV9 monotherapy achieved a median survival of 530 days and a maximal of 814 days, significantly outperforming other groups. (2) Supraphysiological GALC activity and the first reported sustained normalization of psychosine in both the CNS and PNS of aged GLD mice. (3) Unprecedented preservation of compact myelin and axonal integrity in both CNS and PNS. (4)The AAV9-treated cohort displayed preserved motor function indistinguishable from wild-type mice for over one year.
Conclusions: The data suggests that spatial optimization of gene delivery is more critical than therapeutic complexity. By achieving sufficient enzymatic cross-correction from these key CNS hubs, the optimized AAV9 monotherapy effectively treats both CNS and PNS pathologies without the toxicity or logistical burden of BMT and SRT. This establishes a new clinical gold standard: a single-dose, CNS-directed AAV9 strategy that offers a potentially curative, lifelong correction for GLD, replacing the need for invasive combinatorial protocols.

118 **Effects of Coenzyme Q10 Supplementation on Motor and Cognitive Function in Patients with Williams Syndrome**
輔酶 Q10 補充對威廉斯氏症患者運動與認知功能之影響

Zhi-Hong Chung[1], Hai-Ning Tian[1], Yun-Jung Huang[1], Dau-Ming Niu[1,2], Chia-Feng Yang[1,2], Yann- Jang Chen[1,2,3]
Division of Pediatric Genetics and Endocrinology, Department of Pediatrics, Taipei Veterans General Hospital[1]; College of Medicine, National Yang Ming Chiao Tung University[2]; Institute of Clinical Medicine, National Yang Ming Chiao Tung University[3]
鍾志宏 [1]、田海寧 [1]、黃韻融 [1]、牛道明 [1,2]、楊佳鳳 [1,2]、陳燕彰 [1,2,3]
台北榮民總醫院兒童醫學部兒童遺傳內分泌科 [1]; 國立陽明交通大學醫學院 [2]; 陽明交通大學臨床醫學研究所 [3]

Background: Williams syndrome (WS) is a rare neurodevelopmental disorder with impaired motor coordination. Mitochondrial dysfunction has been implicated in its neuromuscular phenotype. Coenzyme Q10 (CoQ10) is a mitochondrial-targeted therapy, but its clinical effects in WS remain unclear.
Methods: Thirty patients with genetically confirmed Williams syndrome (18 females and 12 males; age range, 6–49 years) received oral CoQ10 (10 mg/kg/day; maximum 600 mg/day) for 90 days. Plasma CoQ10 concentrations were measured by enzyme-linked immunosorbent assay (ELISA). Motor and cognitive function were assessed using the Bruininks–Oseretsky Test of Motor Proficiency, Second Edition (BOT-2), and the Test of Nonverbal Intelligence, Fourth Edition (TONI-4), at baseline, post-supplementation, and after a 60-day washout period.
Results: Baseline plasma CoQ10 concentrations ranged from 853 to 1,941 μg/L (mean, 1,226.67 μg/L), with all participants exceeding 700 μg/L and eight exceeding 1,400 μg/L. After 90 days of supplementation, concentrations increased to 1,109–1,741 μg/L (mean, 1,364.97 μg/L); however, due to marked inter-individual variability, the overall change was not statistically significant.Motor proficiency assessed by BOT-2 improved significantly following CoQ10 supplementation. Significant gains were observed in fine manual control, manual coordination, body coordination, and total motor composite scores (all $p < 0.05$). Improvements were most evident in coordination-related domains and were partially sustained after the washout period, whereas strength and agility did not improve and declined after discontinuation.Cognitive function assessed by TONI-4 showed baseline deviation IQ scores ranging from 55 to 106, with approximately 71% of participants scoring below 70, and no significant changes across study phases.
Conclusions: CoQ10 supplementation was associated with significant and partially sustained improvements in motor coordination and overall motor proficiency, but not cognitive function, in patients with Williams syndrome.

119 **Deciphering Cryptic Aberrations in Balanced Chromosomal Rearrangements using Integrated Long-Read Sequencing and Optical Genome Mapping**
以長讀長全基因體定序結合光學基因體圖譜揭示平衡染色體重排的隱匿異常

Yu-Ming Chang[1,2], Yu-Wen Pan[2], Meng-Che Tsai[1,2], Yen-Yin Chou[1,2], Pao-lin Kuo[1,3]
Department of Genomic Medicine, National Cheng Kung University Hospital, Tainan, Taiwan[1]; Department of Pediatrics, National Cheng Kung University Hospital, Tainan, Taiwan[2]; Department of Obstetrics and Gynecology, National Cheng Kung University Hospital, Tainan, Taiwan[3]
張聿民 [1,2]、潘妤玟 [2]、蔡孟哲 [1,2]、周言穎 [1,2]、郭保麟 [1,3]
國立成功大學醫學院附設醫院基因醫學部 [1];小兒部 [2];婦產部 [3]

Background: Balanced chromosomal rearrangements (BCRs) are often considered low risk because routine cytogenetics and chromosomal microarray show no net dosage change. However, BCRs can cause disease through cryptic imbalances, gene disruption at breakpoints, or complex derivative architecture that is difficult to resolve with conventional testing.
Methods: We recruited three probands with neurodevelopmental disorders carrying a clinically reported balanced inversion or translocation. All underwent long-read whole-genome sequencing (LRS) and optical genome mapping (OGM). LRS was used to call structural variants and define breakpoint junctions at nucleotide resolution,

while OGM provided long-range maps to reconstruct chromosome-scale configurations.

Results: Case 1 was initially interpreted as a de novo balanced inversion of chromosome 8p23-8p11.2 and was reclassified by LRS and OGM as an unbalanced inversion-deletion with two interstitial 8p deletions flanking an inverted segment, consistent with 8p23.1 microdeletion syndrome. Case 2 was initially recognized as a de novo balanced inversion of chromosome 7q11.21-7q22; breakpoint mapping via LRS and OGM showed that the proximal breakpoint disrupts AUTS2, providing a molecular explanation for the proband's neuropsychiatric and dysmorphic features. Case 3 was initially reported as two de novo translocations between chromosome 2:13 and 5:7, and was resolved by LRS and OGM as a multi-break, four-chromosome complex rearrangement with focal deletions and disruption of CNTNAP2 gene.

Conclusions: Combined LRS and OGM can convert ambiguous "balanced" cytogenetic findings into definitive molecular diagnoses by revealing cryptic deletions, gene-disrupting breakpoints, and complex rearrangement structure. This integrated approach supports improved diagnostic interpretation and genetic counseling in patients with BCRs.

書面報告

1 **Early Presentation of a Nondysraphic Cervical Intradural Lipoma in a Neonate: Case Report and Review of Surgical Management**
新生兒非脊柱裂型頸椎硬脊膜內脂肪瘤的早期臨床表現：病例報告與手術治療回顧

Hung-Ming Huang[1,2], Yin-Ting Chen[2,3], Yu-Chun Yeh[1,2]
Department of Education, China Medical University Hospital, Taichung, Taiwan[1], School of Medicine, China Medical University, Taichung, Taiwan[2], Department of Neonatology, China Medical University Children's Hospital, Taichung, Taiwan[3]
黃泓銘[1,2]、陳映廷[2,3]、葉郁純[1,2]
中國醫藥大學附設醫院教學部[1]; 中國醫藥大學醫學系[2]; 中國醫藥大學兒童醫院新生兒科[3]

Background: Nondysraphic intradural spinal lipomas are rare developmental lesions, accounting for less than 1% of all spinal tumors. Cervical intradural–extramedullary involvement presenting in the neonatal period is exceptionally uncommon, with only a very limited number of cases reported at such an early age. Early recognition is essential to prevent irreversible neurological deficits.
Methods: We report a 1-month-and-8-day-old previously healthy male infant transferred to our hospital due to progressive respiratory distress. The clinical course included recurrent vomiting, cyanotic episodes, breath-holding spells, and bilateral proximal upper-limb weakness with loss of Moro and palmar grasp reflexes. Neurological examination revealed marked upper-limb hypotonia with relatively preserved lower-limb movement. Brain imaging was unremarkable. Spinal magnetic resonance imaging demonstrated a long-segment intradural extramedullary mass extending from the craniocervical junction to the T3–T4 level. The lesion was hyperintense on T1- and T2-weighted images and suppressed on fat-saturated sequences, consistent with a lipomatous lesion compressing the spinal cord.
Results: The patient underwent C1–T4 laminectomy with subtotal tumor resection, followed by laminoplasty and duraplasty. Postoperatively, hydrocephalus developed and was managed with external ventricular drainage. Gradual improvement in respiratory function and motor strength was noted. The infant tolerated oral feeding and was discharged after a 45-day hospitalization. Follow-up magnetic resonance imaging demonstrated residual lipoma of the spinal cord. Despite the imaging abnormalities, the patient showed appropriate neurodevelopment at one year of age.
Conclusions: To our knowledge, this case represents an exceptionally early presentation of a nondysraphic cervical intradural–extramedullary lipoma. The remarkably early onset highlights the importance of recognizing subtle neurological signs in neonates, such as bilateral proximal upper-limb hypotonia and loss of primitive reflexes. Timely spinal imaging and surgical decompression are crucial for favorable neurological outcomes.

2 **Henoch–Schönlein purpura presenting with features resembling eosinophilic duodenitis**
過敏性紫斑症以類似嗜酸性十二指腸炎表現

Mao-Meng Tiao, Hong-Ren Yu
Department of Pediatrics, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University
刁茂盟、于鴻仁
高雄長庚紀念醫院小兒科

Background: Gastrointestinal (GI) involvement is common in Henoch–Schönlein purpura (HSP). The classic histologic feature is leukocytoclastic vasculitis (LCV), whereas eosinophilic duodenitis is rare. Small bowel involvement—particularly erosive duodenitis—is frequently observed. The most common histologic abnormality is lamina propria hemorrhage. Patients typically present with abdominal pain and later develop a purpuric rash, often accompanied by nausea or vomiting.
Methods: A 3-year-9-month-old girl presented with hematemesis and abdominal pain for 3 days. Upper endoscopy was performed.
Results: Laboratory data: WBC 10.8x1000/uL, RBC 4.74×10⁶/uL, hemoglobin 12.9g/dL, hematocrit 40.2 %, MCV 84.8 fL, MCH 27.2 pg, MCHC 32.1g/dL, platelets 505x1000/uL, segment 70.2 %, lymphocyte 23.6 %, monocyte 5.4 %, eosinophil 0.2 %, basophil 0.6 %, ALT 15 U/L, Na 138 mEq/L, K 4.4 mEq/L, Cl 105 mEq/L, CRP 3.29 mg/L, hs-Troponin I < 0.01 ng/mL. KUB imaging showed fecal retention in the colon and intestinal gas without significant distension. Panendoscopy revealed duodenal erosions with blood clots in the second portion. Pathology showed an eosinophil count up to27/high-power field; no Helicobacter pylori was identified. Findings suggested eosinophilic duodentitis with mild gastritis. Initial antihistamine therapy with diphenhydramine and ketotifen was ineffective. Intravenous dexamethasone was subsequently administered, and the patient's abdominal pain and vomiting improved. Five days later, purpura appeared on both legs and the buttocks.
Conclusions: Henoch-Schönlein purpura presenting as suspected eosinophilic duodenitis has not been reported previously. This case highlights that such a presentation is possible and that antihistamines may be ineffective in this clinical scenario.

3 **Refractory Hypereosinophilic Syndrome Controlled by IL-5 Pathway–Targeting Monoclonal Antibodies: A Case Report**
以 IL-5 途徑標靶單株抗體控制難治性嗜酸性白血球增多症候群：病例報告

Teng-Yang Yu, Hui-Lun Peng, Min-Yu Su, Ching-Tien Peng, Te-Kau Chang, Shiann-Tarng Jou
Department of Pediatric Hematology and Oncology, China Medical University Children's Hospital
余登揚、彭慧倫、蘇旻昱、彭慶添、張德高、周獻堂

中國醫藥大學附設醫院兒童醫院兒童血液腫瘤科

Background: Hypereosinophilic syndrome (HES) comprises disorders with persistent eosinophilia (≥1,500/μL) and organ damage caused by eosinophilic infiltration. Refractory HES denotes inadequate control despite standard therapies such as corticosteroids, cytotoxic agents, or targeted treatments. Careful reassessment of subtype and escalation to advanced therapy are often required. We report a refractory, FIP1L1–PDGFRA–negative HES with multisystem involvement successfully controlled by interleukin-5 (IL-5) pathway–targeting monoclonal antibodies.
Methods: Review of medical records and relevant literature.
Results: Case A previously healthy 7-year-old boy presented with persistent fever, hepatosplenomegaly, jaundice, pulmonary infiltrates with bilateral effusion, and marked hypereosinophilia. Workup suggested chronic eosinophilic leukemia, not otherwise specified, versus idiopathic HES. Corticosteroids were initiated, followed by hydroxyurea and imatinib because of inadequate response. Disease control remained partial with ongoing eosinophilia, liver dysfunction, and splenomegaly. A flare ensued, complicated by cirrhosis with severe decompensation. Adding mepolizumab achieved eosinophil resolution but unexpected basophilia. During tapering of corticosteroids and imatinib, another flare with extreme hypereosinophilia and hepatic decompensation occurred, refractory to the four-drug regimen. Induction chemotherapy with azacitidine and cytarabine was given. After recovery, maintenance therapy with prednisolone, hydroxyurea, dasatinib, and monthly benralizumab was started. The eosinophil count remained undetectable for 6 months, with clinical stability aside from persistent cirrhosis and abnormal liver function.
Conclusions: This case adds to limited evidence supporting IL-5 pathway–targeting monoclonal antibodies in refractory HES, suggesting mepolizumab and benralizumab as promising options for idiopathic HES or CEL-NOS.

4

Severe Hepatitis-Associated Aplastic Anemia : A Case Report and Literature Review
急性猛爆肝炎關聯之嚴重再生不良性貧血:一青少年案例報告及文獻回顧

Chiao-Ling Wang, Shih-Yen Chen, Shu-Huey Chen, Pei-Chun Lin
Department of Pediatrics, Taipei Medical University - Shuang Ho Hospital, Ministry of Health and Welfare
王巧伶、陳世彥、陳淑惠、林珮淳
衛生福利部雙和醫院(委託臺北醫學大學興建經營)兒科部

Background: Hepatitis-associated aplastic anemia (HAAA) is a rare, immune-mediated disorder in which bone marrow failure follows an episode of acute hepatitis. It is potentially life-threatening if untreated and presents significant diagnostic and therapeutic challenges, particularly in pediatric patients.
Methods: We report a previously healthy 16-year-old adolescent who presented with acute severe hepatitis characterized by right upper quadrant abdominal pain and jaundice, with elevated aminotransferases (AST 1,898 IU/L; ALT 2,507 IU/L), direct hyperbilirubinemia, and prolonged prothrombin time. One month later, he developed epistaxis and pancytopenia, and bone marrow biopsy revealed marked hypocellularity with decreased megakaryocytes, consistent with severe aplastic anemia. To provide broader insight into this disorder, we conducted a literature review of pediatric HAAA cases using PubMed and other medical databases, focusing on clinical features, treatment outcomes, and pathophysiology.
Results: The literature review identified several key clinical features of HAAA in pediatric patients. Reported cases commonly presented with jaundice and liver dysfunction, typically preceding the onset of aplastic anemia by weeks to months following acute hepatitis. The underlying etiology of hepatitis is often unknown. Pathogenesis is primarily immune-mediated, characterized by $CD8^+$ T-cell expansion, a reduced CD4/CD8 ratio, and cytotoxic T-cell–driven marrow suppression. Hematopoietic stem cell transplantation remains the treatment of choice, while immunosuppressive therapy is an effective alternative for patients lacking suitable donors. Early recognition and timely intervention are essential for optimizing outcomes.
Conclusions: This case highlights the challenges of diagnosing and managing hepatitis-associated aplastic anemia in adolescents. Our findings support existing literature, emphasizing the critical importance of early recognition and prompt intervention to improve clinical outcomes. Further research is warranted to elucidate the pathophysiological links between hepatitis and bone marrow failure and to evaluate novel therapeutic approaches in pediatric patients.

5

Persistent Renal Cortical Scarring and Recurrent Urinary Tract Infection After Pediatric Salmonella Renal Abscess
兒科 Salmonella 腎膿瘍之長期腎臟後遺症：持續性腎皮質瘢痕與後續反覆泌尿道感染

Po-Cheng Chen[1], Wan-Ting Chou[1], Ming-Yuan Hsu[1], Pin-Ho Pan[1,2]
Department of Pediatrics, Tungs' Taichung MetroHarbor Hospital, Taichung City, Taiwan[1]; Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taichung City, Taiwan[2]
陳柏誠[1]、周琬庭[1]、徐鳴遠[1]、潘品合[1,2]
童綜合醫療社團法人童綜合醫院[1]; 國立中興大學學士後醫學系[2]

Background: Pediatric renal abscess is rare, and Salmonella spp. is an uncommon pathogen in immunocompetent children. Long-term renal outcomes following Salmonella renal abscess are insufficiently described. We report extended follow-up of a child with Salmonella renal abscess to evaluate persistent cortical scarring and subsequent recurrent urinary tract infection (UTI).
Methods: Clinical course, microbiology, imaging studies, and subsequent hospitalizations were reviewed. Serial ultrasonography and technetium-99m DMSA scintigraphy evaluated renal parenchymal injury, and voiding cystourethrogram excluded vesicoureteral reflux (VUR). The temporal association between prior scarring and later UTI was documented.
Results: A previously healthy boy aged 1 year and 2 months developed a large left renal abscess caused by Salmonella enterica serogroup D1 and received percutaneous drainage with intravenous antibiotics. Early DMSA scintigraphy showed reduced left cortical uptake (39.48%), consistent with post-infectious scarring. At 3 years and 8 months, he was readmitted with fever and pyuria; laboratory tests showed leukocytosis (21,400/μL) and elevated C-reactive protein

(5.04 mg/dL). Urine culture grew Citrobacter koseri. Ultrasonography revealed focal cortical thinning at the prior abscess site, and repeat DMSA imaging confirmed persistent scarring with reduced uptake (44.43%). VCUG showed no VUR or structural anomalies. The recurrent UTI localized to the previously scarred kidney, indicating residual parenchymal damage as the major predisposing factor. Renal function and blood pressure remained stable during follow-up.
Conclusions: Persistent cortical scarring after Salmonella renal abscess can last for years and substantially increase the risk of recurrent UTI even without VUR. Continued surveillance with imaging, renal function testing, and blood pressure monitoring is essential to detect delayed complications in affected children.

6 **INSR-related Severe Syndromic Insulin Resistance: A Rare Case Report from Taiwan**
來自台灣的罕見 INSR 基因相關嚴重症候型胰島素阻抗個案報告

Yu-Hsien Chang[1,3], Wei-De Lin[2,4], Chung-Hsing Wang[5,6], Yin-Ting Chen[5]
School of Medicine, China Medical University[1]、School of Post Baccalaureate Chinese Medicine[2];Department of Education, China Medical University Hospital[3]、Department of Medical Research[4]、Department of Pediatrics[5];Division of Medical Genetics, Pediatric Endocrinology & Metabolism, China Medical University Children's Hospital[6]
張宇嫻 [1,3]、林瑋德 [2,4]、王仲興 [5,6]、陳映廷 [5]
中國醫藥大學 醫學系 [1]、學士後中醫學系 [2];中國醫藥大學附設醫院 教學部 [3]、醫學研究部 [4]、兒科部 [5];中國醫藥大學兒童醫院 醫學遺傳科／兒童內分泌與代謝科 [6]

Background: INSR-related severe insulin resistance includes Donohue syndrome and Rabson–Mendenhall syndrome (RMS), both associated with early morbidity, metabolic instability, and characteristic dysmorphism. These disorders are extremely sporadic, with limited reports from Asia. We describe a genetically confirmed case of RMS from Taiwan.
Methods: Clinical, biochemical, and imaging data were collected during the neonatal hospitalization and follow-up periods. Whole-exome sequencing was performed on peripheral blood DNA, with parental and sibling segregation analysis to define the inheritance pattern.
Results: A male infant was born at 39 + 4 weeks with intrauterine growth restriction (birth weight 1970 g, ＜3rd percentile). Soon after birth, he exhibited tachycardia, glucose fluctuations, and severe hyperinsulinemia (＞300 mU/L) with elevated C-peptide and glycosuria. Dysmorphic and dermatologic features included proptosis, infraorbital folds, flared nostrils, gingival hypertrophy, thickened lips, hirsutism, acanthosis nigricans, hypertrichosis, prominent nipples, enlarged genitalia, nail abnormalities, and markedly reduced subcutaneous fat. Imaging demonstrated hypertrophic cardiomyopathy, bilateral renal enlargement, and nephrocalcinosis. Whole-exome sequencing identified compound heterozygous variants in INSR: a maternal nonsense variant c.1965C＞A (p.Y655X), classified as likely pathogenic, and a paternal splice-affecting variant c.3660-6C ＞A, classified as a variant of uncertain significance. Segregation analysis confirmed that disease manifestation was consistent with the combined effect of these variants. During the mother’s subsequent pregnancy, amniocentesis showed the fetus did not carry both variants, and a healthy sibling was later born. The patient is currently four years old, with global developmental delay and persistent severe insulin resistance requiring oral hypoglycemic therapy.
Conclusions: This case highlights the characteristic multisystem findings of INSR-related severe insulin resistance and reinforces the importance of early recognition, biochemical assessment, and genetic confirmation. Genetic counseling is essential for guiding prenatal evaluation and recurrence-risk discussion.