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經歷

長庚大學呼吸治療學系教授
長庚大學呼吸治療學系助教授、副教授
美國哈佛大學公共衛生學院博士後研究員
長庚護理專科學校護理科助理教授
國立空中大學生活科學系兼任講師

獲獎

108年度教育部友善校園獎大專院校優秀導師
107年度長庚大學優良教師輔導獎

近年研究計畫

A. 科技部研究計畫

- 探討室外空氣污染物及發炎指標物對妊娠高血壓婦女之胎兒生長結果的地區性差異研究 (計畫主持人) 2020/08/01至 2023/07/31
- 智慧型手術室系統對於提升空氣品質及改善醫護人員暴露手術煙霧成效之研究 (計畫主持人) 2018/08/01 至2019/07/31
- 北部與高雄地區健康孕婦暴露室外空氣污染物對體內氧化壓力、發炎反應及胎兒生長之影響 (計畫主持人) 2017/08/01 至2018/07/31
- 懷孕婦女室內外空氣污染物暴露與體內氧化壓力、發炎反應及胎兒生長之相關性 (計畫主持人) 2016/08/01 至2017/07/31
- 溶液除濕空調設備提升手術室空氣潔淨度之效能評估 (計畫主持人) 2015/08/01 至 2016/07/31

B. 長庚醫學研究計畫

- 偵測各種手術煙霧中芳香烴化合物(苯、甲苯和二甲苯)之濃度分佈 (共同主持人) 2018/10/01 至 2019/07/31
- 牙科診區空氣品質與影響因子評估 (共同主持人) 2016/12/01 至2018/11/30
- 空調系統設計與換氣次數對於手術室靜態空品質的影響 (共同主持人) 2016/01/01 至 2016/12/31
- 不同除濕系統在醫院手術室之空調應用與能耗比較分析 (共同主持人) 2015/03/01 至 2016/02/28
- 環境暴露對氣喘孩童呼氣指標影響與建置個人行動環境暨健康管理系統 (計畫主持人) 2015/02/01 至 2017/01/31
- 手術室動態空氣品質與潔淨度之監測 (共同主持人) 2014/10/01 至 2016/09/30
- 加護病房中呼吸器系統細菌污染狀況及表面消毒效果評估研究 (計畫主持人) 2014/06/01 至 2016/05/31



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近年研究成果

- Hung TH, Chen PH, Tung TH, Hsu J, Hsu TY, **Wan GH***. Risks of preterm birth and low birth weight and maternal exposure to NO₂/PM_{2.5} acquired by dichotomous evaluation: a systematic review and meta-analysis. *Environmental Science and Pollution Research* 2023;30:9331-9349. <https://doi.org/10.1007/s11356-022-24520-5>. (SCI) (*Corresponding author)
- Lin TY, Yan DC, Wang YJ, Liang YT, Chen TL, **Wan GH***. An aerosol inhalation monitor would improve the accuracy of checklist assessment in drug inhalation techniques. *Respiratory Medicine* 2023;206:107068. <https://doi.org/10.1016/j.rmed.2022.107068>. (SCI) (*Corresponding author)
- Chen CT, Huang SF, Li CJ, Huang JM, Chang KP, **Wan GH***. Distribution of ultrafine aerosols and volatile organic compounds from surgical smoke during electrocauterization. *Air Quality, Atmosphere and Health* 2022;15:2009-2020. doi: 10.1007/s11869-022-01233-9. (SCI) (*Corresponding author)
- Chiu CH, Chen CT, Cheng MH, Pao LH, **Wan GH***. Use of urinary hippuric acid and o-/p-/m-methylhippuric acid to evaluate surgical smoke exposure in operating room healthcare personnel. *Ecotoxicology and Environmental Safety* 2021;217:112231. doi: 10.1016/j.ecoenv.2021.112231. (SCI) (*Corresponding author)
- Hung TH, Hsu TY, Tung TH, Tsai CC, Ou CY, Chung FF, **Wan GH***. The association between maternal exposure to outdoor air pollutants, inflammatory response, and birth weight in healthy women. *Environmental Research* 2021;196:110921. doi: 10.1016/j.envres.2021.110921. (SCI) (*Corresponding author)
- Liu MH, **Wan GH***. Air quality and its influencing factors of dental treatment rooms. *Taiwan Journal of Pediatric Dentistry* 2021;29:1-12. (*Corresponding author)
- Cheng MH, Chiu CH, Chen CT, Chou HH, Pao LH, **Wan GH***. Sources and components of volatile organic compounds in breast surgery operating rooms. *Ecotoxicology and Environmental Safety* 2021;209:111855. doi: 10.1016/j.ecoenv.2020.111855. (SCI) (*Corresponding author)
- Lin HL, Fink JB, Tsai YH, **Wan GH***. Managing humidity support in intubated ventilated patients with coronavirus disease 2019 (COVID-19). *Infection Control and Hospital Epidemiology* 2020;12,1-2. doi: 10.1017/ice.2020.418. (SCI) (*Corresponding author)
- Yeh KW, Chen CT, Lee PC, Huang JL, Yan DC, Chen LC, Lin SJ, Yao TC, Wu CD, **Wan GH***. Outdoor air pollutants exposure associated with pulmonary function and EBC pH value in atopic asthmatic and non-asthmatic children. *Journal of Asthma* 2020;21:1-7. doi: 10.1080/02770903.2020.1788075. (SCI) (*Corresponding author)



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近年研究成果

- Chien TY, Liang CC, Wu FJ, Chen CT, Pan TH, **Wan GH***. Comparative analysis of energy consumption, indoor thermal-hygrometric conditions, and air quality for HVAC, LDAC, and RDAC systems used in operating rooms. *Applied Sciences* 2020;10(11),3721. doi: 10.3390/app10113721. (SCI) (*Corresponding author)
- Lin HL, Chiu LC, **Wan GH**, Huang CC, Lee ZT, Lin YT, Wu SR, Chen CS. Hypertonic saline enhances the efficacy of aerosolized gentamicin against *Pseudomonas aeruginosa*. *Scientific Report* 2020;10(1), 4325. (SCI)
- Liang CC, Wu FJ, Lee ST, Chien TY, Chen CT, Wang C, **Wan GH***. Effect of ventilation rate on the optimal air quality of trauma and colorectal operating rooms. *Building and Environment* 2020;169(2), 106548. doi: 10.1016/j.buildenv.2019.106548. (SCI) (*Corresponding author)
- Liu MH, Chen CT, Chuang LC, Lin WM, **Wan GH***. Removal efficiency of central vacuum system and protective masks to suspended particles from dental treatment. *PLoS One* 2019;14(11): e0225644. doi: 10.1371/journal.pone.0225644. (SCI) (*Corresponding author)
- Liu CY, Ko HK, Fink JB, **Wan GH**, Huang CC, Chen YC, Lin HL. Size distribution of Colistin delivery by different type nebulizers and concentrations during mechanical ventilation. *Pharmaceutics* 2019;11(9):459. doi: 10.3390/pharmaceutics11090459. (SCI)
- Chia TP, Ton SS, Liou SJ, Hsu HF, Chen CT, **Wan GH***. Effectiveness of engineering interventions in decreasing worker exposure to metalworking fluid aerosols. *Science of the Total Environment* 2019;659(1):923-927. (SCI) (*Corresponding author)
- Yang SH, Chen CT, Lin HL, **Wan GH***. Influential factors of aerosolized therapeutic drugs delivery efficiency. *Chang Gung Journal of Science* 2018;29:1-12. (*Corresponding author)
- Chung FF, **Wan GH***, Kuo SC, Lin KC, Liu HE. Mother-infant interaction quality and sense of parenting competence at six months postpartum for first-time mothers in Taiwan: A multiple time series design. *BMC Pregnancy and Childbirth* 2018;18(1):365(1-13). (SCI) (*Corresponding author)
- Li YC, Lin HL, Liao FC, Wang SS, Chang HC, Hsu HF, Chen SH, **Wan GH***. Potential risk for bacterial contamination in conventional reused ventilator systems and disposable closed ventilator-suction systems. *PloS One* 2018;13(3):e0194246. (SCI) (*Corresponding author)
- Lee ST, Liang CC, Chien TY, Wu FJ, Fan KC, **Wan GH***. Effect of ventilation rate on air cleanliness and energy consumption in operation rooms at rest. *Environmental Monitoring and Assessment* 2018;190(3):178. (SCI) (*Corresponding author)



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- Lin HL, Fang TP, Cho HS, **Wan GH**, Hsieh MJ, Fink JB. Aerosol delivery during spontaneous breathing with different types of nebulizers- in vitro/ex vivo models evaluation. Pulmonary Pharmacology & Therapeutics 2018;48:225-231. (SCI)
- Yang SH, Yang TM, Lin HL, Tsai YH, Fang TP, **Wan GH***. Size distribution of salbutamol/ipratropium aerosols produced by different nebulizers in the absence and presence of heat and humidification. Pulmonary Pharmacology and Therapeutics 2018;48:22-27. (SCI) (*Corresponding author)
- Liu MH, Tung TH, Chung FF, **Wan GH***. High total volatile organic compounds pollution in a hospital dental department. Environmental Monitoring and Assessment 2017;189(11):571. (SCI) (*Corresponding author)
- Tseng HY, Lin HL, Wang YC, **Wan GH***. Clinical applications of 8-isoprostane and cysteinyl leukotrienes in exhaled breath condensates. Journal of Respiratory Therapy 2017;16(2):1-12.(TSCI) (*Corresponding author)
- Ding PH, Wang GS, Guo YL, Chang SC, **Wan GH***. Urban air pollution and meteorological factors affect emergency department visits of elderly patients with chronic obstructive pulmonary disease in Taiwan. Environmental Pollution 2017;224:751-758. (SCI) (*Corresponding author)
- Yan DC, Chung FF, Lin SJ, **Wan GH***. The relationships among Dermatophagoides pteronyssinus exposure, exhaled nitric oxide, and exhaled breath condensate pH levels in atopic asthmatic children. Medicine 2016;95(39):e4825. (SCI) (*Corresponding author)
- Ding PH, Wang GS, Liu YK, Chen BY, **Wan GH***. Urban Air Pollution in Taiwan before and after the Installation of a Mass Rapid Transit System. Journal of Environmental Quality 2016;45:1731-1739. (SCI) (*Corresponding author)
- Tsai YH, Chen KW, Hsiao HF, Fang TP, Chien MY, **Wan GH***. Job burnout associated with work satisfaction in hospital respiratory therapists. Journal of Respiratory Therapy 2016;15(2):1-13. (TSCI) (*Corresponding author)
- **Wan GH**, Huang CG, Chung FF, Lin TY, Tsao KC, Huang YC. Detection of common respiratory viruses and Mycoplasma pneumoniae in patient-occupied rooms in pediatric wards. Medicine 2016;95(14):e3014. (SCI)