2017

環境因子對婦女與嬰幼兒易感族群之健康危害評估專題系列研討會(II)

Conference of Taiwan Maternal and Infant Cohort Study (II)

大會手冊

時間:106 年 4 月 27 日星期四

地點:高雄醫學大學勵學大樓三樓半視聽中心

主辦單位:

行政院國家科學委員會生命科學研究推動中心

高雄醫學大學環境醫學研究中心

協辦單位:

高雄醫學大學附設中和紀念醫院社區醫學部

環境因子對婦女與嬰幼兒易感族群之健康危害評估專題系列研討會(II)

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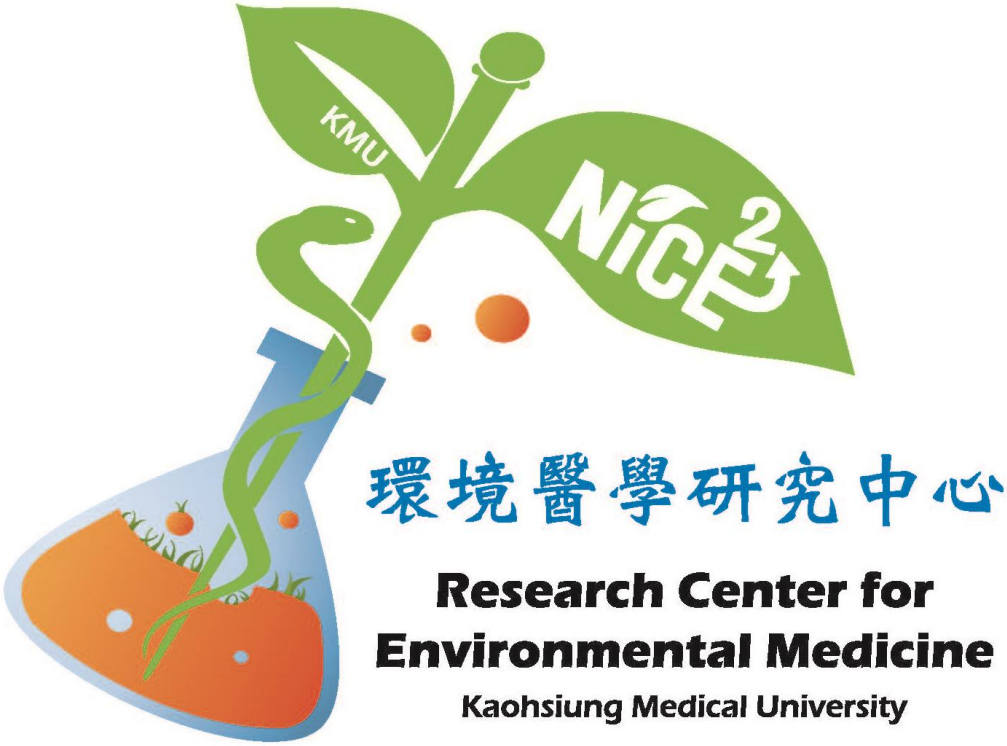
目錄 / Contents

環醫中心 Logo 闡述



此圖描繪著橘土孕育著一株向陽的植物，從斜置的錐形瓶伸展而出。錐形瓶中的橘土及小草孕育出綠意盎然的植物，象徵本中心胸懷在地，以學術卓越、醫學轉譯和人才培育三者併進回饋社會；斜置的錐形瓶則代表多元挑戰與未定的環境醫學研究，本中心正如此扶搖直上的單蛇杖追求永續發展。刻著字母的兩片綠葉，一片代表本中心在校方的持續支持下逐漸成長茁壯；另一片 $NICE^2$ 是 Novelty, Integration, Contribution, and Environmental Excellence 的縮寫，象徵本中心戮力追求創新、跨域整合、社會貢獻，並立足高醫，更為全球的環境醫學領域貢獻己力，矢志在卓越中持續精進，彰顯二次方之真意。

感謝醫學院及健康科學院師生與本中心成員們協力設計此標誌，共同記錄本中心追求不懈的核心理念與價值，實為彌足珍貴之文化資產。

-高雄醫學大學環境醫學研究中心 于 2017 年初

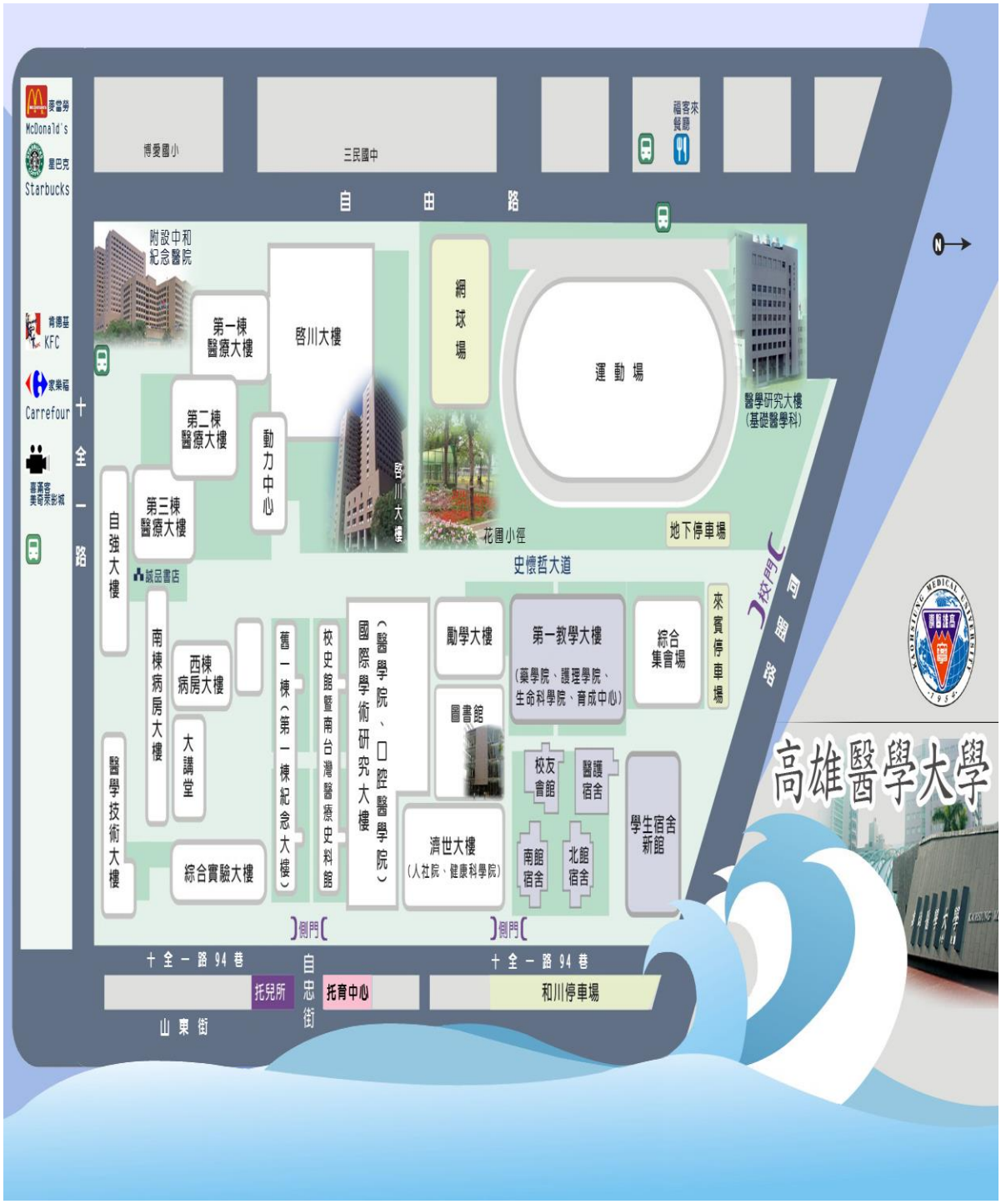
Logo Description for “Research Center for Environmental Medicine”

The logo of Kaohsiung Medical University’s Research Center for Environmental Medicine shows a green Rod of Asclepius with two leaves and a single green snake coming out of a tilted glass flask of orange dirt with grass sprouts and reaching upwards. While not evident, the tilted flask represents the Center not yet firmly established or well-funded but able to cultivate young researchers and scientists grounded in their goals of promoting healthy society and sustainable environment. The Rod of Asclepius points towards the sky aiming at focused and relevant research goals, academic excellence, and research-based environmental medicine. The KMU leaf represents the full support of Kaohsiung Medical University and the $NICE^2$ leaf stands for what we value--Novelty, Integration, Contribution, and Environmental Excellence. The squared symbol suggests the synergistic achievement of these values. Although it appears cute, the logo represents our very serious dedication to novel cross disciplinary research that contributes to both society and environmental medicine.

We thank our students and faculty members from Colleges of Medicine and Health Sciences for delineating our mission and designing this logo which represents our goals and values in Environmental Medicine.

大會一般資訊 / General Information

高雄醫學大學位於高雄市三民區十全一路 100 號



大會一般資訊 / General Information

交通指引

- 火車高雄站後站出口距本校約兩公里，車程約 5 分鐘。
- 小港機場轉搭計程車約 30 分鐘。
- 開車沿中山高速公路南下，
- 下「鼎金交流道」於民族路左轉，再於同盟路右轉，即達本校。
- 下「九如交流道」沿九如路往火車站方向，於自由路右轉，遇同盟路右轉，即達本校。
- 高鐵車站轉搭計程車約 17 分鐘，沿大中路於自由路右轉，再於同盟路左轉即達本校。
- 高捷車站轉搭捷運接駁公車，由後驛站出入口 2 搭乘紅 29 接駁車，即達本校。

停車資訊

- 本校第一、第二來賓停車場：在附設醫院內，由自由路進入，費用每小時 30 元計(30 分鐘內以 15 元計,超過 30 分鐘以 30 元計)，第一來賓停車場地面有機車停車場，費用每次 20 元計。
- 運動場地下停車場：在校園內，由同盟路進入，限本校教職員工生停放汽、機車。
- 和川停車場：由十全一路 94 巷進入，限本校教職員工生停放汽、機車。
- 同盟路上路邊收費停車格。
- 有關學術活動申請車輛停放，請洽本校停車場管理委員會辦理(電話:3121101-2188 或 6988)。

聯絡資訊

環境醫學研究中心行政助理/陳奕璇

- 地址:高雄醫學大樓濟世大樓七樓 CS720
- 電話: (07)312-1101 / 分機:2141-43

序言

2011 年台灣引發的塑化劑食安風暴，造成社會高度恐慌，高雄醫學大學與陽明大學、國家衛生研究院、慈濟大學四區共同組成學術研究合作聯盟，在 2013 年 1 月建立「台灣婦幼出生世代研究」團隊(Taiwan Maternal and Infant Cohort Study；簡稱：TMICs)，分別在北、中、南、東 9 家醫院開始收集與長期追蹤懷孕婦女個案與其新生兒之完整問卷以及相關生物檢體，以詳盡地了解台灣特有與日常常見的環境及食安因子，包括：空氣汙染物、環境荷爾蒙汙染物、重金屬、丙烯酰胺、以及三聚氰胺等，對懷孕婦女本身以及其嬰幼兒健康之影響與衝擊，並積極尋求防治解決之道。

面對無所不在的塑化劑暴露風險，高醫大環境醫學研究中心(簡稱：環醫中心)的研究團隊提出，「遠離暴露、回歸自然、分散風險、保持快樂」十六字箴言，建議民眾要減少使用塑膠袋裝熱食以及減少使用保鮮膜微波，最好外食自己攜帶食器，勤用肥皂洗手，以減少暴露或食用風險，且多喝白開水加速排出體內殘留塑化劑。此中心於 105 年 1 月 27 日舉辦第一場「婦女與嬰幼兒易感族群生殖生長發育之健康危害評估」專題研討會，其 TMICs 團隊於會中分別報告與分析過量暴露塑化劑對新生兒、幼童的性荷爾蒙、出生結果及神經行為發展等各方面的影響，而今年(2017 年)高雄醫學大學，本著醫學大學善盡社會責任之使命，在科技部生命科學研究推動中心補助下，再次舉辦「環境因子對婦女與嬰幼兒易感族群之健康危害評估」之專題系列研討會，會中將發表一系列環境中塑化劑及其它常見之環境汙染物暴露對婦女與嬰幼兒易感染族群對健康影響的成果，以做為日後政府訂定相關法規之參考，並釐定國人對環境毒素每日耐受量參考值，以預防或減低環境毒素導致國人健康傷害的社會與經濟影響。

高雄醫學大學環境醫學研究中心

校長致詞稿

為回應 2011 年以來台灣陸續發生的大規模食安風暴與環境污染議題，環醫中心在學校邁向頂尖研究中心的經費支持下，2016 至 2017 兩年不間斷地舉辦此專題系列研討會，今年並在科技部生命科學研究推動中心補助下，邀請來自北、中、東、南部講師，以主題式方式探討環境中常見汙染物對於易感族群孕婦與兒童健康危害的影響，會中將針對國人特有環境因子、個人健康與跨世代影響皆提出相關的階段性研究成果。研究成果旨在喚起國人與政策相關單位對飲食安全、環境賀爾蒙及其它常見環境汙染物的關注；更提倡事前的風險評估與防範措施，更甚於健康危害後的龐大社會代價。

感謝記者朋友們蒞臨此重要議題的研討會，期盼各講題報告人精彩的研究成果分享，能引起台上台下的熱烈討論與互動，也感謝校內、外人士的參與，期盼此專題研討會能順利圓滿成功，更為環境醫學創下新的里程碑。

高雄醫學大學 劉景寬校長

大會議程 / Conference Program

環境因子對婦女與嬰幼兒易感族群之健康危害評估專題系列研討會(Ⅱ)
Conference of Taiwan Maternal and Infant Cohort Study(Ⅱ)
2017 年 4 月 27 日(星期四)
地點:高雄醫學大學勵學大樓三樓半-視聽中心

Time	主題與講者	主持人
09:00-09:30	報到	
09:30-10:10	**Environmental Health Issues Among Susceptible Populations of Taiwan** 陳保中特聘教授(台灣大學公共衛生學院職業醫學及工業衛生研究所)	高雄醫學大學環境醫學研究中心 吳明蒼教授
10:10-10:30	**Soap and the Removal of Di-(2-ethylhexyl)phthalatefrom Hands: N-of-1 and Crossover Designs** 肥皂洗手清除手中塑化劑效率的研究 林碧憶博士候選人(哈佛大學公共衛生學院)	
10:30-10:50	**開幕:校長致詞/拍照**	
10:50-11:10	休息時間	
11:10-11:50	**空氣污染與健康** 黃彬芳教授(中國醫藥大學公共衛生學院職業安全與衛生學系)	台灣大學 公共衛生學院職業醫學及工業衛生研究所 陳保中教授
11:50-12:30	**孕婦塑化劑暴露與其性荷爾蒙的相關性及對子代的影響** 王淑麗研究員(國家衛生研究院國家環境醫學研究所)	
12:30-13:30	午餐時間	
13:30-14:10	**全國性孕婦產前壬基酚暴露特性與相關出生結果-TMICS 成果** 陳美蓮教授(陽明大學醫學院環境與職業衛生研究所)	高雄醫學大學附設醫院 毒物科 陳百薰教授
14:10-14:50	**孕婦塑化劑暴露影響因素探討與對神經行為發展之關係** 謝佳容助理教授(慈濟大學公共衛生學系)	
14:50-15:30	**台灣南部地區孕婦與臍帶血中汞、錳、鐵和銅的濃度：一個橫斷面的研究** 黃世惠老師(輔英科技大學護理系)	高雄醫學大學 研究發展處研究總中心 蔡英美教授
15:30-16:10	總結	高雄醫學大學環境醫學研究中心 吳明蒼教授

中心主任簡介 / Director Profiles

吳明蒼 教授
（高雄醫學大學環境醫學研究中心）

中文姓名	吳明蒼	英 文 姓 名	**Ming–Tsang Wu**
聯絡地址	□□□□□高雄市十全一路 100 號濟世大樓 721 室		
聯絡電話	(公) 07-3121101 ext. 2141 ext. 55 or 07-3221806 (宅 /手機)		
傳真號碼	07-3221806	E-mail	e_encourage@yahoo.com 或 960021@cc.kmuh.org.tw

主要學歷

學校名稱	國別	主修學門系所	學位	起訖年月(西元年/月)
哈佛大學公共衛生學院	美國	環境與職業衛生	公衛博士	自 1993 / 09 至 1997 / 03
哈佛大學公共衛生學院	美國	環境與職業衛生	公衛碩士	自 1993 / 09 至 1997 / 03
中山醫學院	台灣	醫學系	醫學士	自 1980 / 09 至 1987 / 06

現職及與專長相關之經歷

服務機構	服務部門／系所	職稱	起訖年月(西元年/月)
現職:高雄醫學大學	公共衛生學研究所	教授/班主任	自 2011/09 至迄今
現職:高雄醫學大學	臨床醫學研究所/環境職業醫學博士學位學程	所長/主任	自 2014/09 至迄今
現職:高雄醫學大學	環境醫學研究中心	主任	自 2014/09 至迄今
現職:高雄醫學大學附設醫院	家庭醫學科	主治醫師	自 2007 / 02 至迄今
現職: 高雄醫學大學附設醫院	社區醫學部	主任	自 2016/08 至迄今
經歷：國家衛生研究院	環境衛生與職業醫學研究組	助研究員	自 2000 / 03 至 2001 / 07
美國哈佛大學	公共衛生學院	博士後研究員	自 1997 / 04 至 2000 / 02

專長

1. BE 分子流行病學	2. BF 公共衛生學	3. BF 職業醫學	4. BO 家醫科

近五年著作目錄 (2014-now; Selected publications)

1. Chen HM, **Wu MT Residential exposure to chlorinated hydrocarbons from groundwater contamination and the impairment of renal function-An ecological study.. Sci Reports 2017;7:40283-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

2. Wu IC, Chen YK, Wu CC, Cheng YJ, Chen WC, Ko HJ, Liu YP, Chai CY, Lin HS, Wu DC, **Wu MT Overexpression of ATPase Na+/K+ transporting alpha 1 polypeptide, ATP1A1, correlates with clinical diagnosis and progression of esophageal squamous cell carcinoma.. Oncotarget 2016;7(51):85244-85258. supported by (NHRI-EX105-10226PC) (SCI) Accepted (NHRI)

3. Tsai HJ, Wu CF, Tsai YC, Huang PC, Chen ML, Wang SL, Chen BH, Chen CC, Wu WC, Hsu PS, Hsiung C, **Wu MT Intake of phthalate-tainted foods and serum thyroid hormones in Taiwanese children and adolescents. . Sci Reports 2016;6:30589-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

4. Tai SY, Huang SP, Bao BY, **Wu MT Urinary melatonin-sulfate / cortisol ratio and the presence of prostate cancer: A case-control study. Sci Reports 2016;6:29606-supported by NHRI-EX104-10209PI (SCI) Accepted (NHRI)

5. Tsai WC, Haung YB, Kuo HF, Tang WH, Hsu PC, Su HM, Lin TH, Chu CS, Jhuo SJ, Lee KT, Sheu SH,**Chen CY, **Wu MT, Lai WT Hormone replacement therapy and risk of atrial fibrillation in Taiwanese menopause women: A nationwide cohort study.. Sci Reports 2016;6:24132- (SCI) Accepted

6. Tsai SY, Hsieh HM, **Huang SP, **Wu MT Hair dye use, regular exercise, and the risk and prognosis of prostate cancer: Multicenter case–control and case-only studies. . BMC Cancer 2016;16 :242-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

7. Tsai HJ, Chen BH, Wu CF, Wang SL, Huang PC, Tsai YC, Chen ML, Ho CK, **Hsiung CA, **Wu MT Intake of phthalate-tainted foods and microalbuminuria in children: the 2011 Taiwan food scandal.. Environ Int 2016;89-90:129-137. supported by (NHRI-EX102-10209PI (SCI) Accepted (NHRI)

8. Wu IC, Hsieh HM, Yu FJ, Wu MC, Wu TS, **Wu MT A long-term risk-benefit analysis of low-dose aspirin in primary prevention.. Eur J Clin Invest. 2016;46:130-140. (SCI) Accepted

9. Lin FC, Chuang YS, Hsieh HM, Lee TC, Chiu KF, Liu CK, **Wu MT Early statin use and the progression of Alzheimer's disease: A total population-based case-control study.. Medicine (Baltimore) 2015;94:e2143-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

10. **Wu MT, Wu CF, Chen BH Behavioral intervention decreases daily melamine exposure from melamine tableware.. Environ Sci Technol. 2015;49:9964-9970. supported by NHRI-EX104-10209PI (SCI) Accepted (NHRI)

11. Kuo FC, Su SW, Wu CF, Huang MC, Shiea J, Chen BH, Chen YL, **Wu MT Relationship of urinary phthalate metabolites with serum thyroid hormones in pregnant women and their newborns - A prospective birth cohort in Taiwan.. PLoS One 2015;10:e0123884-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

12. Liu CC, Hsieh HM, Wu CF, Hsieh TJ, Huang SP, Chou YH, Huang CN, Wu WJ, **Wu MT Long-term prescription of α-blockers decrease the risk of recurrent urolithiasis needed for surgical intervention-a nationwide population-based study.. PLoS One 2015;10:e012249-supported by NHRI-EX102-10209PI (SCI) Accepted (NHRI)

13. Wu CF, Peng CY, Liu CC, Lin WY, Pan CH, Cheng CM, Hsieh HM, Hsieh TJ, Chen BH, **Wu MT Ambient melamine exposure and urinary biomarkers of early renal injury.. J Am Soc Nephrol 2015;26(11):2821-2829. supported by NHRI-EX104-10209PI (SCI) Accepted (NHRI)

14. Wu IC, Hsieh HM, **Wu MT. A short-term risk-benefit analysis of occasional and regular use of low-dose aspirin in primary prevention of vascular diseases: A nationwide population-based study.. BMJ Open 2015;9:e006694-supported by NHRI-EX103-10226PC (SCI) Accepted (NHRI)

15. Lin PC, Chen CH, Pan SM, Chen YM, Pan CH, **Hung HC, **Wu MT The association between rotation shift work and increased occupational stress in nurses.. J Occup Health 2014;52:296-303. (SCI) Accepted

16. Wu CF, Liu CC, Chou YH, Shiea J, **Wu MT Increased detection rate of melamine-containing calcium urolithiasis by using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry technique in clinical practice.. Clinica Chimica Acta. 2014;431:294-298. supported by NHRI-EX103-10209PI (SCI) Accepted (NHRI)

17. Lee CH, Peng CY, Li RN, Chen YC, Tsia HT, Hung YH, Chan TF, Huang HL, Lai TC, **Wu MT Risk evaluation for the development of cervical intraepithelial neoplasia: Development and validation of risk-scoring schemes.. Int J Cancer 2015;136:340-349. supported by NHRI-EX101-9708PI, NHRI-EX102-102098P (SCI) Accepted (NHRI)

18. Wu CF, Chang-Chien GP, Su SW, Chen BH, **Wu MT Findings of 2,731 suspected phthalate-tainted foodstuffs during the 2011 phthalate incident in Taiwan.. J Formos Med Assoc 2014;113:600-605. supported by NHRI-EX103-10209PI (SCI) Accepted (NHRI)

演講者簡介與摘要 / Invited Speakers and Abstracts

陳保中 Pau-Chung CHEN

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電話：(02) 3366 8088
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現任

2016-	國立台灣大學公共衛生學院公共衛生學系	特聘教授
2016-	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	特聘教授
2014-	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	所長
2010-	國立台灣大學醫學院醫學系環境暨職業醫學科	合聘教授
2012-	國立台灣大學醫學院醫學系環境暨職業醫學科	主任
2007-	國立台灣大學醫學院附設醫院環境及職業醫學部	主治醫師
2012-	國立台灣大學醫學院附設醫院環境及職業醫學部	主任
2014-	台灣流行病學會	常務理事
2016-	台灣公共衛生學會	常務理事
2012-	國際職業衛生學會職場生殖危害科學委員會(RHICOH)	主席
2015-	亞洲出生世代研究聯盟(BiCCA)	執行委員

獎勵

2016-2019	國立臺灣大學特聘教授
2016	國立臺灣大學傑出研究獎
2015	科技部傑出研究獎
2014	國立臺灣大學留住特殊優秀人才彈性薪資暨獎勵補助
2006-2016	國立臺灣大學學術研究績效獎勵
2011	國立臺灣大學校內服務優良獎
2004, 2008	國立臺灣大學教學優良獎
1998, 1999	國科會甲種研究獎

學歷

1979-1986	高雄醫學院醫學系	醫學士
1988-1990	國立台灣大學醫學院公共衛生研究所預防醫學組	公共衛生學碩士
1991-1992	倫敦大學公共衛生及熱帶醫學學院	流行病學碩士
1993-1995	倫敦大學公共衛生及熱帶醫學學院	流行病學博士

經歷

1996-1997	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	講師
1997-2000	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	助理教授
2000-2007	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	副教授
2006	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	代理所長
2006-2007	國立台灣大學公共衛生學院公共衛生學系	合聘副教授

2007-2016	國立台灣大學公共衛生學院職業醫學與工業衛生研究所	教授
2007-2016	國立台灣大學公共衛生學院公共衛生學系	教授
1997-2000	國立台灣大學環境保護暨職業安全衛生中心職業衛生組	組長
2005-2012	國立台灣大學環境保護暨職業安全衛生中心職業衛生組	組長
2008-2009	國立台灣大學環境保護暨職業安全衛生中心	副主任
1996-2004	中華民國環境職業醫學會	副秘書長
1999-2000	中華民國公共衛生學會	秘書長
2008-2015	中華民國環境職業醫學會	理事
2011-2013	台灣肥胖醫學會	監事
2010-2013	台灣公共衛生學會	秘書長
2011-2014	台灣流行病學會	理事
2007-2012	國際職業衛生學會職場生殖危害科學委員會(RHICOH)	執行委員
2012-2014	亞洲出生世代研究聯盟(BiCCA)	首任主席

專長

環境職業醫學、預防醫學、流行病學、生殖危害、兒童環境醫學

授課

健康與疾病發展起源、環境職業衛生統計、生殖毒理特論、生殖危害專題討論、環境與婦女健康書報討論、環境與兒童健康書報討

演講摘要

Environmental Health Issues among Susceptible Populations of Taiwan

Environmental health among susceptible populations is widely recognized as a global public health issue of great importance, especially the role of prenatal and postnatal exposures to environmental and genetic factors in the etiology of adverse child health. We started to conduct Taiwan birth panel study to investigate prenatal and postnatal factors on infant and early childhood health. Through this prospective birth cohort, the main health outcomes focused on child growth and development, atopic diseases, and neurocognitive and language development. We investigated the main prenatal and postnatal factors including infection, herb use in pregnancy, breastfeeding, allergens and other pollutants such as environmental tobacco smoke, heavy metals, non-persistent pesticides, endocrine disrupting chemicals, and psychosocial stress under the consideration of interaction of the environment and genes. These studies bridge knowledge gaps and answer unsolved issues in the low-level, prenatal or postnatal, and multiple exposures, genetic effect modification, and the initiation and progression of "environmentally-related childhood diseases." In addition, we play an active role in education, research, and services in the field of "pediatric environmental health" via integrating multi-disciplines.

台灣易感族群的環境健康議題

環境健康對易感族群的影響，是全球公共衛生非常重要的議題，一直被廣泛討論著，特別是在於產前及產後的環境暴露及基因影響兒童健康的部分。
我們進行台灣出生世代小型研究，探討影響嬰兒和幼兒健康的產前和出生後因素。台灣出生世代小型研究為一前瞻性出生世代研究，研究側重於兒童生長發育、過敏性濕疹、神經認知和語言發展。本研究主要以產前和產後可能的影響因子，包括感染、孕期草藥使用、母乳哺育、過敏原和其他汙染物，如環境菸草煙霧、重金屬、非持久性殺蟲劑、內分泌干擾化學物質，並加入考量環境和基因交互作用的心理壓力，觀察分析其關連性及影響程度。應用研究結果以彌補知識差距來嘗試回答許多不一致懸而未決的問題，例如在低濃度暴露、產前或產後暴露、多重不同物質暴露、基因遺傳效應改變以及誘發及加速「環境相關兒童疾病」等領域的關鍵問題。希望經由跨領域的知識整合，在教育和研究能發揮積極作用，以期應用在促進「兒童環境健康」的範疇。

演講者簡介與摘要 / Invited Speakers and Abstracts

林碧憶 Pi-I Debby Lin

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37 Tien-Wei St, Shin-Tien Village, Linlo, Pingtung 90942, Taiwan (ROC)

Mobile (Taiwan): +1-886-906944502

Email： pil864@mail.harvard.edu

PROFESSIONAL PROFILE

Entrepreneur with five years of executive experience. A dynamic and creative leader and public speaker. Research scientist with training in environmental epidemiology, molecular biology nutritional epidemiology, biostatistics, and analytical chemistry. An indigenous youth leader actively participating in culture exchange.

CAREER ACCOMPLISHMENTS

- Successfully founded a start-up company.
- Presented research findings at research symposiums as the plenary speaker.
- Represent as indigenous youth in the United Nations
- Actively engaged in international and local Indigenous rights' groups
- Published two books on Indigenous culture exchange

WORK EXPERIENCE

Research Center for Environmental Medicine, Kaohsiung Medical University, Taiwan 2016-present

Project Manager

• Managed international collaboration projects with Harvard School of Public Health, University of Minnesota, and National Institute of Health (US).

Boayond Biotechnology, Ltd, Taiwan 2007- Present

Founder and CEO

• Managed all operations for this start-up company.
• Contracted over ten projects with the Taiwanese government.
• Recruited, hired, and trained over twenty staffs.

Kaohsiung Medical University Hospital, Taiwan 2010-2011

Research Assistant

•Conducted research on breast cancer in clinical and laboratory settings.
•Assisted with nationwide cancer screening of breast, cervical, colon and oral cancers.
•Established a molecular cancer research laboratory.

National Taiwan University, Taiwan 2007-2008

Research Assistant

•Carried out independent research to study cellular responses to ionizing radiation and hypoxia condition.
• Published one research article and two posters.

3M, St Paul, Minnesota, USA 2006-2007

Tech Aide

•Managed a research laboratory in the Corporate Research Material Laboratory.
•Conducted research on bioprocessing design.
•Co-authored three Record of Inventions.

University of Minnesota, St Paul/Minneapolis, Minnesota, USA 2004-2006

Academic Service Center Coordinator

•Managed the operation of an Academic Service Center in the residential hall.
•Provided academic tutoring service.
•Recruited, hired, and trained more than 10 tutors.

EDUCATION

B.S. in Genetics, Cell Biology and Development AND Physiology GPA: 3.4/4.0
University of Minnesota, Twin Cities, College of Biological Science Honors

Graduated May, 2006.

Master of Science in Public Health GPA: 3.95/4.0

Kaohsiung Medical University, Taiwan

Thesis: *Handwashing strategy to remove dermal exposure of phthalate esters.*

Graduated July, 2013.

Doctor of Science in Environmental Health GPA: 3.71/4.0
Harvard TH Chan School of Public Health

Concentration: Environmental and Occupational Molecular Epidemiology

Dissertation: *Effect of diet and nutrient on birth weight: a study of maternal nutrientand arsenic exposure in Bangladesh.*

In progress, expected November 2017.

PROFESSIONAL DEVELOPMENT

Date	Institution	Course
2016	Harvard Catalyst Education Program	Fundamentals of Clinical and Translational Research (FaCToR)
2016	Harvard TH Chan School of Pubic Health	Power and Differences Workshop
2015	Harvard TH Chan School of Pubic Health	Ethical Issues in Global Health Research (EIGHR)
2014	Harvard TH Chan School of Pubic Health	Responsible Conduct of Research

TEACHING EXPERIENCE

Teaching Assistant 2013-Present
Harvard TH Chan School of Public Health, Boston, Massachusetts, USA
• Course: International Field Experience in Occupational Health and Safety

Instructor 2010-2011
International Indigenous Affairs Training, Council of Indigenous Peoples, Taiwan
• Course: Introduction on United Nations Permanent Forum on Indigenous Issues
• Course: International field experience on Indigenous affairs

Academic Tutor 2003-2006
Academic Service Center, University of Minnesota, Twin Cities, USA
• Manage 6 academic tutors in the center
• Tutor college level chemistry, biology, and Mandarin Chinese

RESEARCH EXPERIENCE

Date	Institution	Supervisor	Research area
2014-2017	Harvard TH Chan School of Pubic Health	Dr. David Christiani	Metal exposure and reproductive outcome
2012	University of Minnesota	Dr. Stephen Hecht	Carcinogenesis and chemoprevention
2011	Kaohsiung Medical University	Dr. Ming-Tsang Wu	Environmental/Occupational Epidemiology
2006	University of Minnesota	Dr. Jianyi Zhang	Cardiac stem cell
2005-2006	Hennepin County Medical Center	Dr. Michelle Biros	Emergency medicine
2004-2006	University of Minnesota	Dr. Do-Hyung Kim	Genetic mechanisms of cancer
2003-2004	University of Minnesota	Dr. John Ward	Plant biology

AWARDS AND HONORS

2013	National Merit Scholarship for Study Abroad (for 3 years), Ministry of Education, Taiwan (ROC)
	HSPH Central Grant, HSPH Central Stipend, HSPH Tuition Grant, Harvard School of Public Health
2012	Scholarship for International Research, Kaohsiung Medical University
	Graduate Student Scholarship, Kaohsiung Medical University
	Indigenous Peoples Excellency Award, Council of Indigenous Peoples, Taiwan (ROC)
2006	Presidential Scholarship Award (4 years), University of Minnesota
	Poster Award, University of Minnesota Research Symposium
	Dean's List, University of Minnesota, College of Biological Science
	Colonial Dames Scholarship, Colonial Dames Scholarship, Minnesota
2004	Taiwan Women Scholarship, North America Taiwan Women Association
2003	Dean's List, University of Minnesota, College of Biological Science
2002	Honors List, University of Minnesota, Post-Secondary Enrollment Option
	Dean's List, University of Minnesota, College of Biological Science

AFFILIATIONS

RESEARCH

•**Contact person,** Birth Cohort Consortium of Asia (BiCCA)

•**Reviewer,** International Journal of Public Health (IJPH)

•**Member,** Harvard Catalyst, The Harvard Clinical and Translational Science Center

•**Member,** Endocrine Society

•**Member,** Medical Association of Taiwan Indigenous Peoples

Academic

•**Committee Member,** Student Advisory Committee, Harvard TH Chan School of Public Health

•**Member**, Kaohsiung Medical University Indigenous Student Association

•**Director of Activities,** Taiwan Student Association at University of Minnesota

•**Director of Cultural Events,** Friendship Association of Chinese Scholars and Students at University of Minnesota

Member, Genetics, Cell Biology, and Development Club at University of Minnesota

•**Member**, National Honors Society in Minnesota

Service

•**Presidents,** Boston Taiwanese Christian Student and Young Professional Fellowship, Boston Taiwanese Christian Church

•**Regional Focal Point**, United Nations Global Indigenous Youth Caucus

•**Member**, Taiwan Indigenous Enterprises and Economic Development Association

•**Indigenous Youth Representative**, Makapahay Cultural Association

•**Member**, Women's Federation for World Peace-Taiwan, ROC

•**Volunteer Intern**, International Association on Volunteer Services

•**Member**, Gray Panthers

演講摘要

Soap and the Removal of Di-(2-ethylhexyl)phthalatefrom Hands: N-of-1 and Crossover Designs

BACKGROUND:

Children are frequently exposed to phthalates, disrupters of endocrine function, through the hand-to-mouth route. Using N-of-1 and crossover studies, we compared Di-(2-ethylhexyl)phthalate (DEHP) removal by handwashing with soap and water vs. water only.

METHODS:

In two three-day N-of-1 trials, residual DEHP was measured in a single female adult who washed exposed hands with soap and water or water only. Then, 4 female and 4 male exposed adults were randomly assigned to wash with soap and water and 4 females and 4 males with water only. After residual DEHP collection, both groups washed with additional soap and water for further residual DEHP collection. The groups were crossed over and experiment repeated 24 h later. Measurement was performed by HPLC and analyzed by non-parametric statistics.

RESULTS:

The N-of-1 trials found the DEHP removal rate (mean ± SE) of soap-and-water handwashing to range from 95.92 ± 0.11% to 97.00 ± 2.54% and that of water-only handwashing from 1.82 ± 0.09% to 7.01 ± 0.29% (n = 3). In the crossover study, mean (± SD) removal rate was 91.42 ± 5.78% in the subjects (n = 16) washing with soap and water and 10.64 ± 6.55% in those (n = 16) washing with water only, an 80.78 ± 2.10% difference ($P < 0.001$). In the water-only group, additional washing with soap and water removed significantly more DEHP (70.61 ± 11.60%; cumulative removal, 81.25 ± 12.14%) ($P < 0.001$).

CONCLUSIONS:

Soap and water removes much more DEHP than water only from exposed hands.

演講者簡介與摘要 / Invited Speakers and Abstracts

黃彬芳 BING-FANG HWANG

Dean for Academic Affairs
Professor, Department of Occupational Safety and Health, College of Public Health
Ph.D., Department of Epidemiology, Bloomberg School of Public Health, Johns Hopkins University 2002
Phone: (886)-4-22053366 ext6208
Email: bfhwang@mail.cmu.edu.tw
URL: http://cmudosh.cmu.edu.tw/english/Bing-Fang%20Hwang.php

Research Interests:

Air pollution, Pregnancy outcomes, Children health, Asthma, Gene-environment interaction

Most Important Scientific Honors:

Guest Editor of Special Issue "Genetic Impact on the Development of Allergic Disease" in International Journal of Environmental Research and Public Health (2013-2014).
Academic Editor of Medicine (2014-)
Editorial Board of Environment Disease (2016-)
Associate Editor of Journal of Alzheimers Disease (2015-2016)
Guest Editor of Special Issue “Environment and blood pressure” in International Journal of Hypertension (2016)
編輯委員 勞工安全衛生研究季刊 (Editor of Journal of Occupational Safety and Health) (2015-)
Outstanding Teaching Materials Award, China Medical University (2014.9)
科技部獎勵特殊優秀人才(彈性薪資)(2015.8-2016.7)
Outstanding Research Award, China Medical University (2006.8-2009.7; 2011.7-2014.6)
Young Investigator Travel Award, 16th Conference of the International Society for Environmental Epidemiology, August, 2004.
Scholarship, Nordic School of Public Health, Gothenburg, SWEDEN, December, 2001.
Scholarship, Department of Epidemiology, Bloomberg School of Public Health, The Johns Hopkins University, Baltimore, USA, (1998-2002).
Student Travel Award, 43 rd Annual Meeting of the Radiation Research Society, San Jose, California, USA, April, 1995.

Appointments:

Professor and Dean for Academic Affairs, China Medical University, Taichung, TAIWAN (2017.2-)
Professor and Dean of Graduate Student Affairs, China Medical University, Taichung, TAIWAN (2015.8-2017.1)
Professor and Chair, Department of Occupational Safety and Health, College of Public Health, China Medical University, Taichung, TAIWAN (2012.8-2015.7).
Professor, Department of Occupational Safety and Health, College of Public Health, China Medical University, Taichung, TAIWAN (2011.9-now).
Associate Professor, Department of Occupational Safety and Health, College of Public Health, China Medical University, Taichung, TAIWAN. (2006.8-2011.8)
Associate Professor, Department of Health Care Administration, Diwan College of Management, TAIWAN. (2005.8-2006.7)
Adjunct Associate Professor, Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University, TAIWAN. (2006.2-2007.6)
Adjunct Assistant Professor, Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University, TAIWAN. (2004.2-2006.1)
Dean of Student Affair, Diwan College of Management, TAIWAN (2004.8- 2006.7)
Director of Library, Diwan College of Management, TAIWAN (2003.8-2004.7)

Assistant Professor, Department of Health Care Administration, Diwan College of Management, TAIWAN. (2002.8-2005.7)
Visiting Scientist, Institute of Health Science, University of Oulu, FINLAND (2009.8-2009.9)
Visiting Scientist, Institute of Occupational and Environmental Medicine, University of Birmingham, United Kingdom (2003.8-2003.9).
Visiting Scientist, Department of Public Health, University of Helsinki, FINLAND (2001.9-2002.5).
Teaching Assistant, Course: Epidemiology. Nordic School of Public Health, Gothenburg, SWEDEN (2001,12).
Teaching Assistant, Principles of Epidemiology in the Summer Institute, Department of Epidemiology, School of Hygiene and Public Health, Johns Hopkins University, MD USA (2000.6-7).

Research Interests:

My research field includes epidemiological studies focusing on the health effects of the environment. I am also interested in genetic determinants of health, in particular the joint effects of genetic and environmental factors, i.e. evaluating whether genetic determinants or genetic polymorphisms interact with environmental exposures to modify disease risk (gene-environment interaction).From outcome-oriented approach my research field covers:

- Respiratory epidemiology
- Reproductive epidemiology

From the determinant-orientated approach my research area can be divided into six major fields:

- Water disinfection by-products (DBPs) and reproductive outcomes
- Ambient air pollution and health
- Indoor environment and health
- Occupational environment and asthma

演講摘要

空氣污染與健康

空氣污染為目前全球關注的重要議題，其包含一次汙染物及二次汙染物。空氣污染透過氧化壓力及其毒性可能誘發多種健康效應，例如：呼吸系統疾病、心血管疾病、中樞神經系統疾病及死亡率。

中國醫藥大學黃彬芳老師研究團隊從環保署所建立的 70 個監測站中獲得 1995 年至 2010 年一氧化碳、二氧化氮、氧氣、懸浮微粒 PM_{10}、$PM_{2.5}$ 的連續小時數據。利用反距離權重法進行模式推估，探討空氣汙染與健康效應之關係，著重於出生缺陷(口裂、肢體缺陷)、死產、自閉症、阿茲海默症、川崎氏症。透過這些研究，我們發現短期及長期空氣污染與健康效應的關係可能存在明顯的 time windows。全世界所有人都面臨暴露於空氣汙染物的問題，透過這些發現將可提供相關單位擬訂空氣污染防治策略的參考。

目前本研究團隊正在建構全台灣的土地利用回歸模式及衛星估計模式，以更有精準推估空氣汙染暴露，通過這些模式，我們將可建立長期之空氣汙染暴露資料庫，以作為評估短期及長期健康效應之用。

演講者簡介與摘要 / Invited Speakers and Abstracts

王淑麗 Shu-Li (Julie) Wang, Ph.D.
National Institute of Environmental Health Sciences
National Health Research Institutes
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Web:
http://www.nhri.org.tw/NHRI_WEB/nhriw1001Action.do?emp_cd=890807

Education

1986-1990	B.S, Public Health, National Taiwan University, Taiwan
1990-1995	Ph.D., Epidemiology and Public Health, University of London, UK

Research and Professional Positions Held in Chronological Sequence

1995-1996	Post-doctoral researcher, Department of Gerontology, University of Cambridge, U.K
1996-1997	Post-doctoral researcher, Division of Epidemiology & Public Health, Institutes of Biomedical Sciences, Academia Sinica, Taiwan
1997-2000	Assistant / Associate Professor, Department of Public Health, Chung-Shan Medical University, Taiwan
2000-2004	Assistant Principal Investigator, Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Taiwan
2001-2002	Adjunct Assistant Professor, Graduate Institute of Public Health, National Cheng Kung University, Taiwan
2004-2008	Associate Principal Investigator, Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Taiwan Associate Professor, Graduate Institute of Occupational Safety and Health, Kaohsiung Medical University, Taiwan
2009-present	Full Investigator, Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Taiwan
2010-present	Professor, Department of Public Health, China Medical University, Taiwan
2012-2013	Visiting Scholar, National Institute of Environmental Health Sciences, National Institute of Health (NIEHS/NIH), U.S.A.
2013-present	Adjunct Professor, Department of Public Health, National Defense Medical Center, Taiwan
2015-present	Adjunct Professor, Center for Environmental Medicine, Kaohsiung Medical University, Taiwan

Research Interests

Wang's research interests are mainly on Environmental Children Health with regards to pollutant form air, water, food, climate change, and life styles, and its effects on endocrine system, neuron-cognitive function, immunity (i.e. obesity, behavioral problem, allergic diseases). The approach is primarily from pre-birth cohort, which is the follow-up of children from in utero till adolescents. The studied causation agents include endocrine disruptors (i.e. phthalates, dioxins), metals (lead, arsenic, cadmium), and pathogen (virus).

Professor Wang is also interested in searching for environmental factors contributing to the pathogenesis of cardiovascular disease and cancer. The interaction between the environment and genes is investigated to understand how the environment may affect gene expression, and how genetic factors might modify the effect of pollutants.

The research interests might also include environmental and occupational health with regards to electroplating industry, semi-conductor, and epidemiological investigations for residents living with high background exposure level to toxic metals (Changhua) and dioxins (i.e. An-Nan area). It is hoped that the research may help managing the environmental pollutions, preventing the related health effects, and improve heath and welfare particularly among maternal and children population.

Major Honors and Awards

1995	Travel Award, International Diabetes Federation (IDF)
1996	Travel Award, International Diabetes Federation (IDF)
1997	Academia Sinica Travel Award
1998	Academia Sinica Travel Award
1999	Special Research Award, National Science Council (NSC)
2002	Young Scientist Award, Asian Conference on Occupational Health (ACOH)
2008	Award for Junior Research Investigators, National Health Research Institutes Research (NHRI)
2010	Who's Who in Medicine and Healthcare Board U.K.

演講摘要

孕婦塑化劑暴露與其性荷爾蒙的相關性及對子代的影響

王淑麗[1] 溫慧茹[1] 孫千雯[1] 吳明蒼[2] 陳美蓮[3] 謝佳容[4]
[1]國家衛生研究院國家環境醫學研究所
[2]高雄醫學大學公共衛生學系
[3]陽明大學環境與職業衛生研究所
[4]慈濟大學公共衛生學系

背景：

鄰苯二甲酸酯類(phthalate ester，PAEs)是一種被大量使用於日常生活用品中之塑化劑，且被歸為是會干擾各種內分泌功能的環境荷爾蒙。兒童在生長發育是快速的，且須有良好的內分泌調控系統，若受到環境荷爾蒙之影響可能會造成一些兒童的健康問題。因此，及早對兒童內在暴露及相關影響做調查和研究是有必要的。

目的：

利用出生世代研究探討出生前 PAEs 暴露與新生兒臍帶血中性荷爾蒙之關聯。

方法：

運用在 2012-13 年建立之出生世代研究，於台灣北、中、南、東部的九家醫院，共邀請了 1,997 對孕婦及其新生兒。以孕婦不同孕期尿液中常見的 11 種塑化劑代謝物作為新生兒出生前暴露濃度，並分析新生兒臍帶血中 7 種性荷爾蒙濃度，並利用斯皮爾曼相關性分析與多變項回歸分析等進行統計分析。

結果：

孕婦尿中塑化劑代謝物濃度，較 2011 年塑化劑事件已經大幅下降，並且隨著孕期的增加而上升，其中濃度最高者為 mono-n-butyl phthalate (MnBP)。在分析 421 位同時具有母親尿液、新生兒資料以及臍帶血的孩童發現，在考慮可能的干擾因素後，再如此低暴露情況，MEOHP 與女嬰臍帶血雄性素(Testosterone, TT)呈正相關，與男嬰自由雄性素 (Free TT) 呈正相關；MBzP 與女童濾泡刺激素(Follicle stimulating hormone, FSH)呈負相關，MnBP 及 MEHHP 則與男童 FSH 呈負相關。

討論：

因著 TT 上升，其上游 FSH 可能會有下降的負回饋調控情形，總之，出生前塑化劑暴露可能會和新生兒臍帶血中生殖性荷爾蒙濃度有關，未來將追蹤塑化劑暴露對孩童生殖發育之影響。

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演講摘要

全國性孕婦產前壬基酚暴露特性與相關出生結果-**TMICS**成果

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台灣北、中、南、東地區的孕婦及其新生兒世代研究 (Taiwan Maternal and Infant Cohort Study, TMICS)之建立起源於 2011 年 5 月台灣爆發以塑化劑取代起雲劑原料中的棕櫚油食安事件，研究團隊除了關心孕婦塑化劑暴露濃度之外，也希望利用所建立的全國性孕婦研究世代，探討國內其他重要環境荷爾蒙暴露特性以及對胎兒的影響。壬基酚（Nonylphenol, NP）因具有雙性構造（一端為極性親水端，另一端為非極性疏水端），在台灣被大量製造使用，而 NP 具有弱的雌激素作用，動物胚胎時期壬基酚的暴露可能影響未來的發育及成長。因此，本報告以壬基酚為對象，探討全國性孕婦產前壬基酚暴露特性與相關出生結果。目前完成壬基酚檢測的樣本共有 605 人，將配合研究個案已完成的結構式問卷及新生兒健康資料，分析孕婦壬基酚暴露的地區別差異，並評估孕婦產前 NP 暴露對於新生兒出生結果的影響。

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演講摘要

孕婦塑化劑暴露影響因素探討與對神經行為發展之關係

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背景：

塑化劑是一群高生產量的合成化學物質，因為其使用量大且人類日常生活中廣泛的接觸，所以近年來備受關注，故了解其暴露來源有其重要性。此外，塑化劑對健康的影響，特別是針對發育中的胎兒和嬰幼兒，仍有許多疑問尚待釐清。

目標：

本研究的目的為孕婦塑化劑暴露影響因素探討與對神經行為發展之關係。

方法：

本研究於 2013 年 1 月至 2014 年 12 月間於台灣北中南東的九家醫院收集孕產婦及其新生兒，包括於第三孕程進行問卷調查收集孕婦懷孕期間個人護理產品及使用塑膠包裝食品之習慣調查，以及收集第三孕程孕婦的尿液，用以分析尿液中 9 種塑化劑代謝物的濃度，並將其分為低分子量與高分子量塑化劑代謝物。此外，並於新生兒出生後五天內以中文版神經行為評估量表評估其神經行為發展。

結果：

經過複迴歸分析後發現，隨著個人護理產品使用品項越多，孕婦尿液 MEP 有上升的趨勢；此外，家中有使用塑膠袋冷藏或加熱的習慣者，其 MEHHP 與 MEOHP 也有上升的趨勢。塑化劑暴露與新生兒神經行為發展在男女性別上則有相反的表現。在男嬰的部份發現，低分子量塑化劑高暴露濃度組相對於較低暴露濃度組，其行為反應表現 ($\beta = -1.64, p = 0.0202$)與神經行為發展總分皆較差 ($\beta = -3.79, p = 0.0248$)。但在女嬰的部份發現，低分子量塑化劑高暴露濃度組相對於較低暴露濃度組，其行為反應表現 ($\beta = 1.80, p = 0.0078$)與神經行為發展總分皆較佳 ($\beta = 4.17, p = 0.0049$)。

結論：

我們的研究指出個人護理產品使用越多與塑化劑的暴露濃度越高，建議懷孕婦女應減少個人護理產品之使用。此外，胎兒時期低分子量塑化劑暴露對於新生兒神經行為發展可能具有影響，且其效應具性別差異。

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演講摘要

台灣南部地區孕婦與臍帶血中汞、錳、鐵和銅的濃度：一個橫斷面的研究

黃世惠、翁根本、林清江、王宗正、李子奇、葛魯蘋、吳明蒼

背景:

孕婦暴露於必需微量元素和重金屬對胎兒的健康效應，是一個全世界婦女都關心的重要議題。而在醫學方面，台灣很少有同時具有成對的孕婦/胎兒全血中的必需微量元素和重金屬濃度的相關資料可利用。

目的:

(1)評估成對孕婦和胎兒之間全血中汞(Hg)、錳(Mn)、鐵(Fe)和銅(Cu)濃度的相關性

(2)研究懷孕期間潛在的干擾因子。

方法:

我們的研究招募了145個健康的孕婦，平均年齡28.06歲，由受訓過的訪員 用問卷收集資料.在生產前後，收集孕婦全血及胎兒臍帶血液樣本。

結果:

在孕婦/胎兒的成對樣本中重金屬濃度皆呈正相關; 汞($r = 0.78$，$p < 0.001$)，錳($r = 0.31$，$p < 0.001$)，鐵($r=0.17$，$p = 0.038$)和銅($r= 0.21$，$p= 0.010$)。母親懷孕時一星期吃大於3次以上的維他命(>3 次/星期)與母血中較低汞濃度有顯著差異(調整過的 odds ratio 0.272, p= 0.005);與母血中較低銅濃度亦有顯著差異(調整過的 odds ratio 0.267, p = 0.004)。胎兒臍帶血對應其母血，其血中汞、錳、鐵濃度的中位數高於母血中濃度；而臍帶血中銅的濃度則低於母血濃度。

結論:

在此系列研究中顯示成對孕婦與胎兒臍帶血之間：汞、鐵、銅、錳呈正相關。我們的發現也提高了懷孕時可藉由吃維他命來降低母體中汞和銅的血中濃度的可能性。

關鍵字: 汞、銅、鐵、錳、孕婦、維他命

主持人簡介 / Moderator Profiles

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Best Paper , 2013 Annual Meeting of Taiwanese Association of Obstetrics and Gynecology
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Best Paper, 2011 Annual Meeting of Taiwanese Society of Reproductive Medicine
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