出國報告（出國類別：研究）

美國器官移植照護及急性醫療專科護理師之角色與工作模式

服務機關：國立成功大學醫學院附設醫院

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派赴國家：美國

出國期間：98 年 12 月 1 日至 99 年 5 月 31 日

報告日期：99 年 8 月 20 日

摘要

目前台灣正積極推展護理角色之拓展，爲因應衛生署的推展計劃，及醫療環境的需求，專科護理師的護理角色需求逐漸升高，其照護品質直接影響病患之醫療服務。本院正積極拓展器官移植之醫療服務，其需要專業醫療團隊整體性與持續性的照護，在護理方面更須有專業之角色，提供病患完整、適切之照護，以達到更優質之護理照護品質，希望藉由吸取國外先進的醫療照護經驗與新知，期能提升本院專科護理師之角色功能與護理品質。此次是以美國西雅圖華盛頓大學附設醫院（University of Washington Medical Center, UWMC）爲參訪地點，參訪日期爲 98 年 12 月 1 日至 99 年 5 月 31 日止。參訪目的爲了解國外專科護理師之教育訓練與在急性照護體系中的角色功能發展、學習外科專科護理師之臨床照護模式、專科護理師在器官移植團隊之角色功能與學習各類器官移植之照護能力，期望能促進本院專科護理師之培訓與推展，提升臨床照護品質及提供臨床護理人員專業照護之教育與諮詢並統整國際專業與經驗，學習移植新知與相關照護知識，以增進移植病患之專業照護能力，並應用於本院移植業務之推行。

目次

一、 出國進修計畫目的

原訂參訪日期爲 98 年 12 月 1 日起，因作業程序問題，實際參訪日期爲 98 年 12 月 29 日起至 99 年 5 月 31 日止。

此次出國進修目的爲：

(一)瞭解美國急性照護醫院臨床護理人員之專業發展與日常工作狀況

(二)瞭解美國急性照護醫療之專科護理師之角色與專業發展

(三)專科護理師在移植團隊中的角色與工作內容

(四)美國移植團隊成員組成與組織架構

(五)移植團隊成員之角色與工作內容分配

(六)器官移植之標準照護

二、 過程

華盛頓大學醫學院（University of Washington Medicine）創立於西元 1959 年，位於美國西北部華盛頓州西雅圖市。它包括了華盛頓大學醫學中心（University of Washington Medical Center, UWMC）、Harborview 醫學中心及西雅圖兒童醫院（Seattle Children's Hospital）。

(UW Medical Center, UWMC)

（Harborview Medical Center）

（Seattle Children’s Hospital）

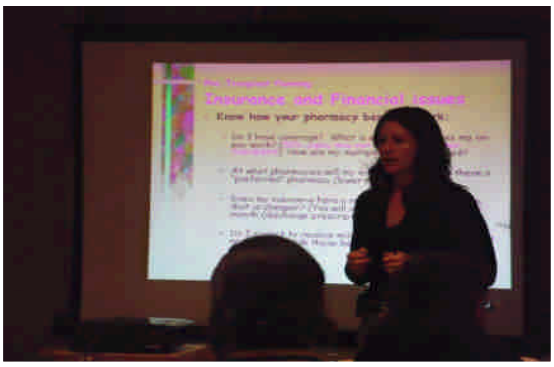
華盛頓大學醫學中心（University of Washington Medical Center, UWMC）共有 450 床，員工約 4300 多人，曾在 2009 年獲選全美最佳醫院的殊榮。主要是以心臟血管科、高危險妊娠、新生兒加護中心、血液腫瘤科、骨科及各類器官移植爲主。器官移植科（Transplant Services）與心胸腔外科（cardiothoracic surgery）在華盛頓大學醫學中心中，主要提供了教學、研究與臨床的服務。器官移植包含了肝臟移植（Liver Transplantation）、腎臟-胰臟移植（Kidney-Pancreas Transplantation）、心臟移植（Heart Transplantation）與肺臟移植（Lung Transplantation）。華盛頓大學醫學中心的器官移植在美國西北部居於領導的地位已有 42 年之久，其器官移植的發展在西元 1968 年完成第一例腎臟移植、1985 年完成第一例心臟移植、1990 年完成第一例肝臟移植、1991 年完成第一例胰臟移植、1992 年完成首例肺臟移植。在西元 1997 年與 2002 年已分別累積第 500 例與第 700 例肝臟移植，在 2009 年心臟與肺臟移植也累積到了第 500 例，在各器官移植的存活率與國際上相比，有很好的表現。如此亮眼的成績歸功於良好的跨科間團隊合作、精湛的技術與豐富的經驗。因此華盛頓大學醫學中心的器官移植照護模式是非常值得我們去學習的。藉由這次的機會參與及觀察他們的每日常規工作，能夠對於他們的臨床工作與照護模式有更深入的瞭解。

	Kidney	Kidney (LD)	Kidney-pancreas	Liver	Lung	Heart
1 year (國際)	96.72 (96.74)	98.61 (98.44)	95.56 (93.28)	91 (88)	85 (80)	90.24 (88.45)
3 year (國際)		96.46 (95.07)	90.55 (86.06)	82 (78)	73 (75)	77.78 (80.72)

（華盛頓大學醫學中心各類器官移植存活率）

在參訪期間，以隨身觀察的方式在移植加護單位、病房、門診與特殊檢查病房等，訪談移植團隊內的成員如總醫師（Fellow）、各器官移植協調師（coordinators）、研究協調師（research coordinators）、社工師（social workers）、專科護理師（Advanced Registered Nurse Practitioner, ARNP）、醫師助理(physician assistant)、移植病房護理人員、藥師及營養師等等…。並且參與各種會議例如肝臟移植、腎臟移植併發症與死亡病例討論會(mortality and mobility, M&M)、肝臟移植團隊月會（monthly Liver team meeting）、肝腫瘤會議（liver tumor conference）、放射科聯合會議（radiology rounds）等等，同時也參與病友的活動，例如：移植術前教育課程（pre-transplant education class）與移植術後病友團體（transplant patients'group meeting）等。





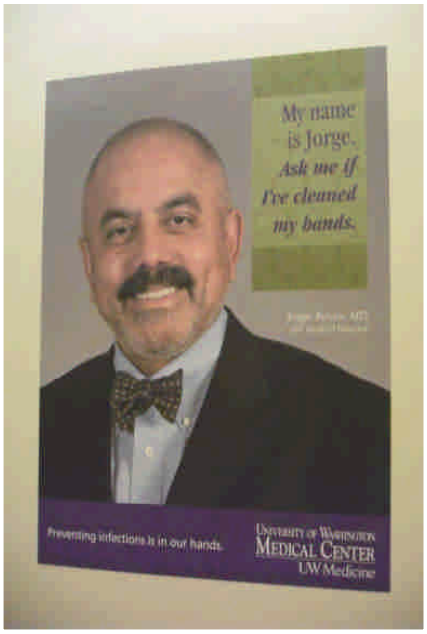
（Pre-transplant education class）

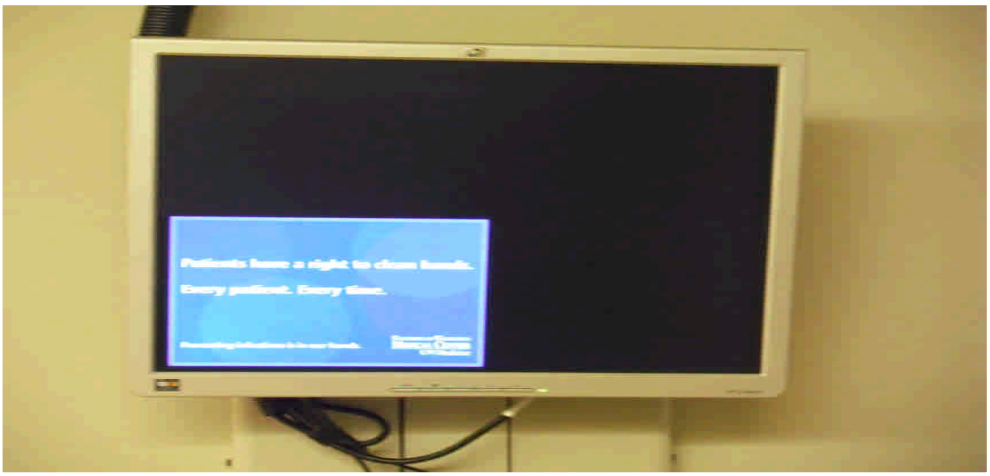


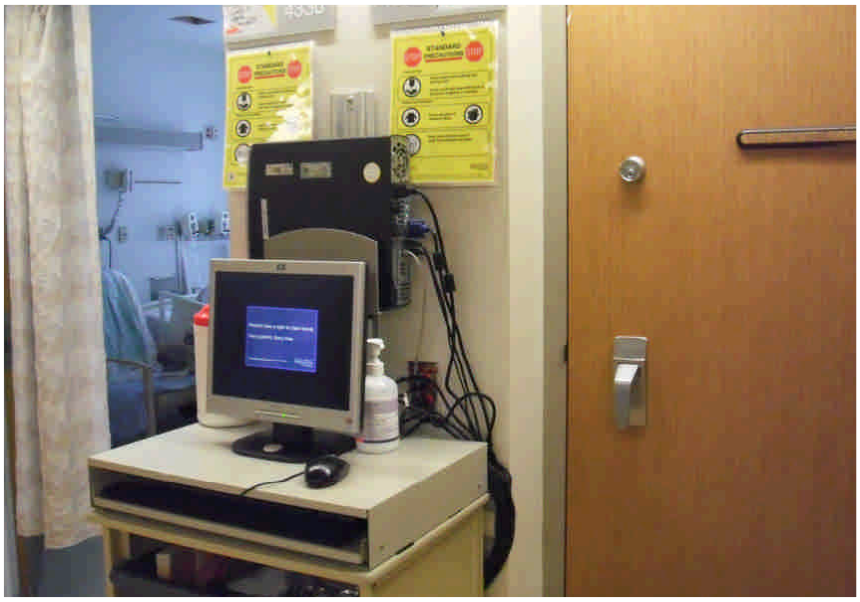
（Transplant patients' group meeting）

經由觀察與訪談後發現許多與本院在移植團隊與照護模式有差異之處，在此提出來討論：

(一) 免疫功能抑制之病人容易受到感染。在華盛頓大學醫學中心中有專屬的移植病房（4SE ward），每一間病室皆爲單人房，每間病房內外皆有手套、乾洗手液、口罩等供醫護人員、訪客、病人與家屬使用，如圖。洗手是預防感染的重要方法，在這裡發現每個醫護人員皆能確實遵守。而在參訪期間恰巧碰上華大醫院正推行全院的洗手運動，因此在醫院每個角落都可以看到洗手的警示標語，包含病房牆上、電腦螢幕保護程式、餐廳桌上等等醒目之處，以作提醒的功用。







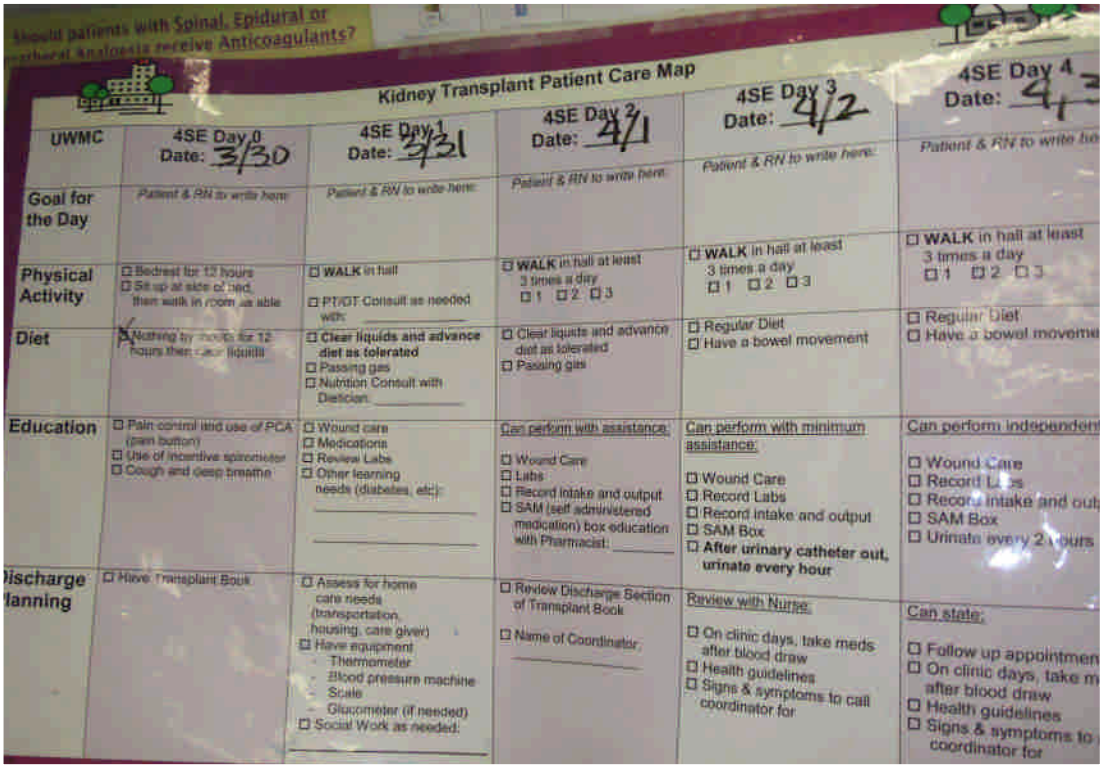
在本院，當醫護人員照護到器官移植病患時，必須穿戴口罩，病患也需要同時配戴，但在華大除非患有感冒才需要戴上口罩外，幾乎很少看到醫護人員帶著口罩接觸病患，這點讓我非常的疑惑，同樣照顧移植術後病患確有這麼不相同的感染管制標準。移植團隊醫師認爲確實的洗手比戴口罩更爲重要，他們認爲免疫抑制劑的使用並且確實監控有效濃度，才是移植成功的關鍵。

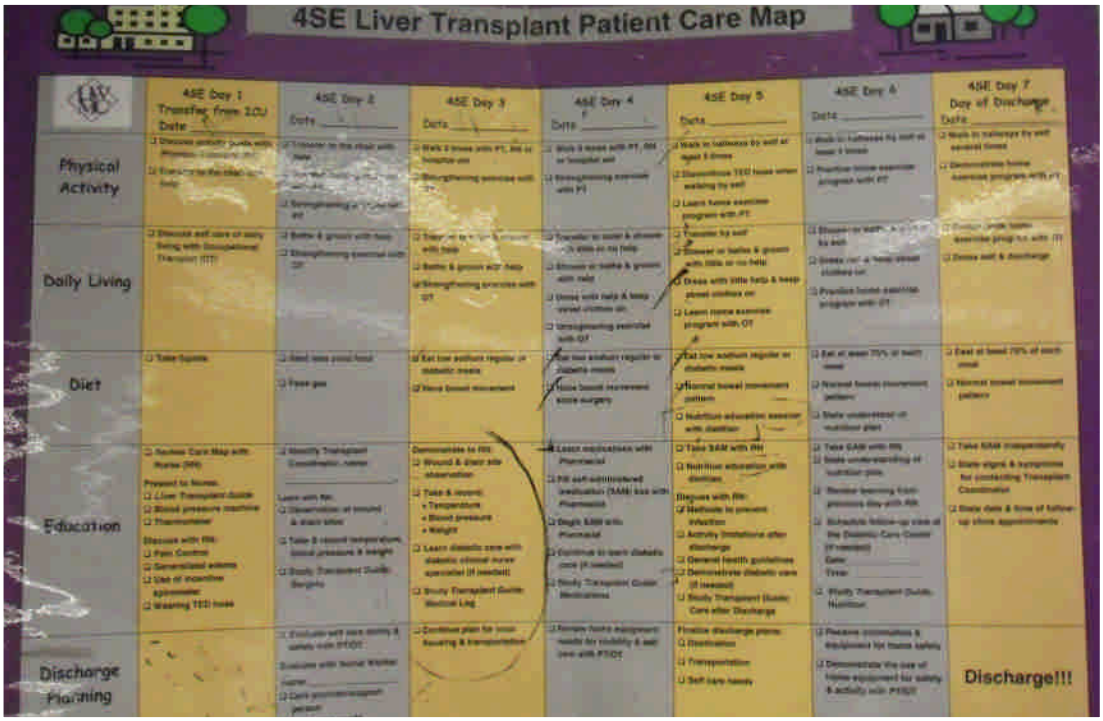
(二) 平均住院天數的比較

	Kidney transplant (days)	living donor of Kidney (days)	Liver transplant (days)
UWMC	4-7	2-3	7-14
NCKUH	7-14	5-7	>14

可以很清楚發現，我們的平均住院天數幾乎是華大的兩倍甚至更多，我想這與經驗、技術及完善的出院準備計畫與不同的醫療保險制度有相關。

在華大醫院，他們有完整清楚的照護準則（care map）如下圖，提供給醫護人員使用與參考。良好的團隊合作與溝通是很重要的，此外衛教也是重要的關鍵之一，團隊內有許多專業的人員參與其中，如營養師（Dietitians）、協調師（coordinators）、藥師（pharmacists）和社工師（social workers）等，他們在病患出院前對病患及主要照顧者分別提供移植術後病患所需之知識，包含什麼是他們必須知道的？什麼是必須遵行的？如何去適應新的生活？及指導他們一些技能來照護自己或家屬。





(三) 在華大醫院的移植團隊包含移植外科醫師與內科醫師，這是與國內醫院移植團隊有很大的差異。在移植團隊中內科醫師扮演了重要的角色，他們不僅提供移植病患術前的評估、檢驗檢查與追蹤外，在術後也參與照護，更在病患出院後返家後做其門診追蹤的工作，這也發揮了持續性照護的模式。大部分需要接受器官移植的病患通常有一些內科疾病，因此在內科醫師的治療下可以得到更好的照護。此外，外科醫師時常在手術房內進行手術，這時內科醫師可以協助病人照護的工作，也能給予外科醫師相關照護上的建議。

(四) 在華大醫院中，非常強調讓病人早期下床。早期下床能夠有效減少長期臥床的合併症，在這裡他們鼓勵病人早期下床，囑咐病患一天至少下床三次以上，幫病患在活動上有限制時，團隊內有物理治療師（physical therapists）與職能治療師（occupation therapists）來協助病患藉由一些輔助工具下床活動，並且評值病患的活動情形。醫護人員也會每天去評值病患的活動狀況。

(五) 移植病患最重要的就是術後的持續追蹤。在華大醫院，移植術後病人出院返家後的門診追蹤除了內外科醫師的生理上的追蹤外，還有藥師監測其用藥情況與免疫抑制劑的血中濃度情形，協調師也會瞭解其在返家生活是否遇到什麼問題，社工師也會持續評估病患在術後是否出現心理問題等等，所以他們的移植團隊不僅僅只提供生理上的，也在心理上也提供持續性的照護追蹤。在許多研究中發現，器官移植術後病人常面臨一些在適應新生活上的問題，社工師在其中就扮演一個重要的角色。此外，對於活體捐贈者（腎臟移植），他們也同樣重視其生理與心理上的問題，在團隊中他們有針對活體捐贈者的協調師與社工師，來評估與協助活體捐贈者。

(六) 一些器官移植術後病患要追蹤移植器官的功能狀況時，必須定期接受移植器官的切片檢查。以肝臟移植爲例，在本院病患必須住院一至兩天，且切片檢查是在放射科由放射科醫師來執行，檢查後病患需留院觀察一天，觀察有無出血傾向。在華大醫院，若病患的凝血功能正常時，是由醫師助理（PA）或是專科護理師（ARNP）來執行，而他們是必須在醫師的指導之下，進行肝臟切片檢查 50 例後，由醫師和醫師助理（PA）、專科護理師（ARNP）共同簽署協議書，方可由醫師助理（PA）或專科護理師（ARNP）獨立進行此檢查，通常這項檢查會在特殊檢查病房中執行，病患在檢查後留院觀察 4-6 個小時，才可出院返家。若病患凝血功能不佳時，則會改爲到放射科由放射科醫師執行經由內頸靜脈穿刺肝切片檢查（jugular vein biopsy）。這項技術相較於一般的肝切片較爲複雜，病患也較感疼痛，檢查過後病患同樣是送到特殊檢查病房觀察 3 小時才可返家。

(七) 在參訪期間曾入開刀房有兩次的經驗。第一次是看到活體腎臟移植手術，從活體捐贈者身上取下腎臟到移植至受贈者身上，可以看到外科醫師熟練的技術，他們使用很少的人力與時間去完成這項手術。在華大醫院，活體腎臟捐贈者只需住院 2-3 天左右便可出院返家，捐贈者身上不

會置放一些管路，如鼻胃管、尿管等等。受贈者也僅有一條導尿管，少數病患在手術部位會被放置 J-P drain。在手術當中，受贈者會被置放一條 stent 來連結移植腎的輸尿管與膀胱，這條 stent 會在術後 3-6 週，在門診經由膀胱鏡取出，這與本院所執行的有很大的不同。另外，在手術傷口照護的部分，不管是活體捐贈者或是受贈者的傷口，皆是以紗布覆蓋兩天後移除，之後則不再覆蓋紗布並衛教病患保持傷口清潔乾燥即可。在本院，通常很少讓病患未拆除管路的情況下出院回家，而在華大醫院讓病患帶管路回家則是很常見的事情。

第二次入開刀房是與移植主任 Dr. Reyes 到 Harborview 醫學中心去看移植器官摘除手術（organ procurement of cadaver donor ）。在台灣，取器官是由外科醫師負責取下有用的器官在移植到受贈者身上，若此捐贈者同時捐贈出多個器官時，可能同一時間會有許多的醫師在開刀房等候取器官，但在這次的經驗中發現，華大醫院執行移植器官摘除手術是由訓練有素且經驗豐富的技術原來執行，這與台灣有很大的差異，在台灣的醫院，所有的手術皆需由醫師來執行，由非醫師的醫療人員來執行是非法的。

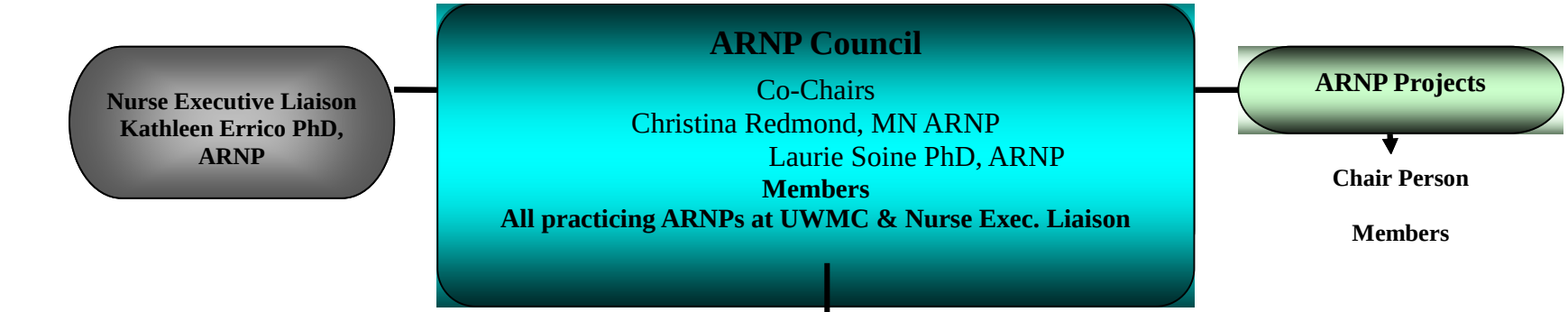
(八) 在華大醫院的移植團隊中有三位醫師助理（PA）。他們是團隊中的核心人物，他們在移植病房中擔任病患術後的第一線照護，從病史的收集、身體評估（physical examination, PE）、開立檢驗檢查、診斷與治療及協助醫師提供病患在各方面的照護需求。在美國醫師助理（PA）是合法的，這些 PA 有醫療工作背景，接受 PA 的學校教育兩年，畢業後取得證照方可在醫療場所進行執業，他們在醫師的指示下進行醫療行爲並且協助與指導新進住院醫師。

而專科護理師（Advanced Registered Nurse Practitioner, ARNP）是一般護理人員在大學畢業後於臨床執業一段時間後，接受 NP 研究所教育 2-3 年，畢業後需同時取得國家考試認證（certificate）及該州執業的執照（license）才可開始執業，ARNP 可獨立執業，依照其所學習之分科與各醫療體系之需求，其角色與功能各有不同。華大醫院內約有一百多名

ARNP，ARNP 的委員會中全部的 ARNP 爲委員，從委員中遴選出主任委員與各組負責委員，其組織圖如下。院內的 ARNP 每年皆須接受該科部主任的評值，有執行護理相關的業務者另由護理部門進行評值。

以肝臟移植團隊爲例，團隊中同時有一位 PA 和一位 ARNP，他們的工作內容大致相似，除了執行一般的肝臟切片外，主要是提供門診病患的診查，包含術前評估、追蹤檢查、術後門診追蹤、C 肝的治療等等。他們可以獨立看診並提供病患的治療處置，遇到病情有複雜性的病患時，則在他們的初步診察後與主治醫師討論並同時提供主治醫師相關的建議。

ARNP COUNCIL
STRUCTURE and COMMITTEES



ARNP Education & Continuing Education Committee

Focus
Liaison for SON Annual Conference
CEU offerings
Precepting

Chair Person
Kumhee Ro

Members
Marie Annette Brown
Barbara Bjeletich
Linda Hillman

ARNP Role Development and Promotion

Focus
CV/Resume
Professional portfolio
Patients & Other providers
ARNP week
Liaison to Patient and Family Centered Care

Chair Person
Christina Redmond

Members
Kathie Errico

ARNP Clinical and Professional Practice

Focus
Assist new hire ARNPs
Credentialing
Privileges & Special Privileges
ARNP New Hire Checklist
Orientation
Liaison with CNO and HR
Liaison to Medical Staff

Nurse Executive Liaison
Kathie Errico

ARNP Research Committee

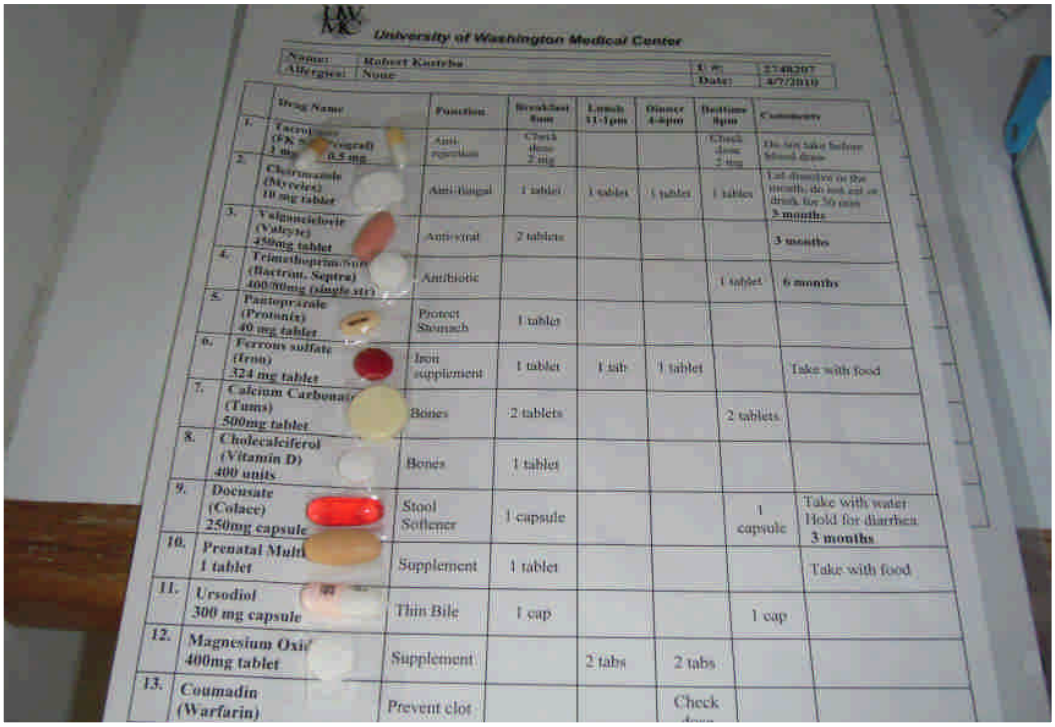
Focus
Write research proposals
Obtain IRB approval
Complete research project
Publish and present
Research Funding

Chair Person
Lorie Soine

Members
Amy Caldwell
Donna Davis
Kathie Errico

(九) 在華大醫院，除了腎臟移植手術外，以肝臟移植爲例，病患在術後需在內科加護病房（Medical Intensive Care Unit, MICU）內觀察 1-2 天，由 MICU 的專科護理師提供第一線的照護工作，密切觀察病患的狀況及提供醫療需求並與各科間進行溝通協調的工作。同時提供輪替之住院醫師的指導與諮詢。

(十) 在華大的移植團隊中更發現一個與本院不同之處。移植團隊中有專門的藥師在裡面，藥師主要提供病患住院期間的用藥諮詢與指示、指導病患返家藥物的使用與血液檢查值的監測。他們參與醫師的查房並提供醫師在用藥上的建議。在病患出院前，藥師會給病患一張其用藥的清單及藥盒（名稱是“mediset”），此藥盒能夠幫忙病患管理他們的藥物。清單上清楚的列出藥物的名稱（學名與商品名同時列出）、藥物作用、副作用、用藥時間、劑量、特殊注意事項等等，藥師與病患及其主要照顧者約定時間，進行約一個小時的返家藥物使用的指導。當病患返家後返診追蹤，藥師同時提供藥物的諮詢與追蹤。



(十一) 移植協調師在移植團隊間是唯一重要的角色。移植協調師分成提供病患術前與術後照護的協調師。術前照護的協調師通常在門診負責管理、追蹤病患的術前檢查與配對評估的進度，提供與主持術前教育訓練。術後照護的協調師則是提供病患手術後的照護到門診追蹤給予持續性的協助，他們提供病患及家屬相關的衛教指導手冊，術前提供三小時的教育課程，術後在出院返家前提供不定時的教育指導。腎移植病患通常是追蹤至術後兩年，其他器官移植如肝、心、肺臟移植病患則是終身追蹤至死亡爲止。協調師是病患及家屬接觸的主要醫療團隊成員，他們的角色如同我們的個案管理師，提供持續性的追蹤照護，負責協助與解決病患與家屬的問題。


CARDIAC
TRANSPLANTATION
Kidney, Liver, & Lung Care
and Transplantation

三、 心得

移植成功的與否關鍵在於良好的團隊合作模式。團隊間的每一位成員都扮演著重要的角色，這是我此次從參訪中所得到的發現。另一個成功與否的關鍵在於持續性的照護，從術前到出院返診追蹤，團隊提供給病患與家屬相關的健康指導、完整的照護與長期的持續追蹤。在華大醫院，所有的團隊成員和病患與家屬有良好的溝通與互動關係。團隊成員彼此就像是一家人，有良好的溝通、協調及默契，工作氣氛和諧，非常令人羨慕，同時也是值得我們去學習效法的。另外，豐富的經驗及完善的出院準備計畫也是移植成功的關鍵之一。未來本院將積極的拓展移植相關業務，華大醫院的移植團隊有著很好的移植照護模式是值得我們去學習的典範。

這次的學習之旅，所學習到的除了華大醫院的臨床照護模式之外，對於初次出國進修的我來說，讓我瞭解到學習好英文的重要性，而學習任何的事物也都必須積極主動，對於周遭的人事物須常保好奇心，虛心的去請教與學習，融入並接受文化上的差異，將會獲得意想不到的收穫。

四、 建議事項

移植病人的手術成功與否可以說需歸功於完善的團隊合作。團隊內每個成員都佔有一重要的角色與功能。華大醫院的移植團隊是一個完整的團隊在運作，團隊裡不僅有醫師(內科,外科都有)、協調師（又分成臨床照護及研究兩種）、PA、專科護理師、營養師、藥師、臨床護理人員、社工師等等，較能提供病人更完整的照護，護理人員也僅需做好分內的工作，病人也能得到很好的照顧，我想這是很值得我們參考與學習的地方。華大醫院在出院衛教方面是由協調師執行，他們從出院門診追蹤時間、飲食及涉水的注意與記錄、預防感染、自我監測生命徵象及記錄、感染的預防等等，一邊作說明同時配合衛教單張給病人，也讓病人或家屬可以隨時提問並給予解答。移植病人術後的居家照顧是一門很重要的課題，但完整的衛教需要花費一個小時，很羨慕華大醫院的移植團隊有藥師可以負責這個部分，我們這裡都是護理人員及協調師的工作，又因爲護理人員能力與經驗上的差異，還有需要同時照護很多病人，常常沒有充分的時間給病人做完整的衛教，可能就是每天片段式，且又由不同人教授的衛教，幸運的可能就得到完整的資訊，運氣不好的可能就搞不清楚狀況，可能因而衍生出許多問題，在這裡我看到的是她們團對分工合作，可以提供移植患者一個完整性的照護，我想我們較缺乏的就是這個精神吧！分工不夠明確，有些人做重複的事或者執行者不夠專業，我們應該善用人力，有效的分工，這樣不僅能減輕護理人員負擔同時也能提供給病人更好的照護品質。此外，移植病患術後的營養也是很重要的。在華大醫院，營養師也是團隊成員之一，不管是術前術後都參與照護工作之中，會診次數就端看病人的狀況，會診後將記錄作爲營養計畫的參考，因此將營養師納入團隊中作術後的會診，也是我們可以考慮施行的一部份。

華大醫院移植團隊總共有六個社工師，其中五位是負責受贈者（肺 1 位、心 1 位, 腎 1 位, 肝 2 位），另一位則是負責活體腎臟捐贈者。與我們醫院很不同的地方是活體捐贈者，僅只有術前一次會診社工，另一個是我們的活體捐贈者必須自行負擔醫療費用，因爲腹腔鏡健保不給付，而美國是由受贈者的保險來負擔，捐贈者作捐贈需承擔手術風險，還必須自行負擔醫療費用，這個部分期望政府相關單位能夠思考這個問題並作調整。另外在台灣外籍配偶逐漸增加，這些人通常

又屬於經濟弱勢，有可能會遭到脅迫或是在經濟壓力下做捐贈，在美國這個現象不像台灣這麼嚴重，反倒是未成年子女捐贈給其父母時，他們會特別去探究他們是不是在父母的脅迫之下才捐贈的，所以社工扮演了非常重要的角色，需要去注意到這些部份！因此社工在移植團隊中同樣扮演很重要的角色，這個部份還有許多改善的空間。

在藥品管理方面華大醫院是由電腦管控，電腦可同時會管控藥品數量，當藥物用完的時候會有程式通知中央藥局，中央藥局就會派人將藥品補齊。本院都是採人工作業的方式，每天要由書記去清點，然後再請工友阿姨來補，工友阿姨有時候根本沒辦法即時補，常常就會有沒藥可用的情況。常備藥也是電腦控管，這樣就不用護理人員每班點班，誰用的用剩下多少電腦都很清楚，當藥品即將用完，還有警示系統通知補貨，未來我們可以朝這個方向去研發，相信可以減輕很多人員的負擔，也能做好藥品的管理與管制。

在美國，NP 在醫療團隊中有其獨立性，接受的是完整的訓練，NP 是碩士學歷以上，對病人照護是全面性的，NP 的教育與養成上，除了依各科部的需求外，一些特殊的功能性護理師，例如遺傳護理師、糖尿病衛教師、造口護理師等之類的角色在美國也稱之爲 NP，國內也應該讓這些進階護理師接受 NP 的訓練,他們取得認證的資格，讓他們在他們的專業領域上獲得認可，也能讓他們更充分發揮他們的專才，使照護品質更加的提昇。

五、 附件

Visit Report

Observation at the Division of Transplant Surgery and
Division of Cardiothoracic Surgery, Department of Surgery
University of Washington Medical Center

Visiting period:

Starting time: 29/ Dec/ 2009

End of visit: 28/ May/ 2010

Objective of the Visit

The goals of visit were to understand:

1. The role of surgical nurses in the United States, especially their professional development by observing their daily work in acute care and general surgery at the Department of Surgery.
2. The role and professional development of nurse practitioners in acute care setting.
3. The role and work of nurse practitioners in organ transplant.
4. The transplant team's organizational structure.
5. The role and work of the team members.
6. The quality standard of organ transplant patient care.

Results of the Visit

University of Washington Medicine is in the Seattle area, including Harborview Medical Center, UW Medical Center (UWMC) and Seattle Children's Hospital. UWMC is one of the nation's leading academic medical centers, which provides highly specialized medical care in areas such as cardiology, high-risk pregnancy and neonatal intensive care, oncology, orthopedics and organ transplantation.

Transplant Services at UW Medical Center are a product of clinical, academic, and research activities of the divisions of transplantation and cardiothoracic surgery at the University of Washington School of Medicine. They include Liver Transplantation, Kidney-Pancreas Transplantation, Heart Transplantation and Lung Transplantation. UWMC has been a leader in organ transplantation in the Northwest for 42 years. The first kidney transplant was in 1968, the first heart transplant in 1985, the first liver transplant in 1990, the first pancreas-only transplant in 1991, and the first lung transplant in 1992. They accomplished the 500^{th} and 700^{th} liver transplant in 1997, 2002, and the 500^{th} heart and lung transplant in 2009. Such achievement must have been the result of successful cooperation of different teams. It would be worthy to learn their practice and experiences. I have a great honor to be granted an opportunity to be part of their daily work and observe their practice. As a nurse practitioner

specialized in organ transplantation, this research helps me gain more in depth understanding of this unique patient group in order to improve the quality of care they receive.

During the visit time, I shadowed and observed with the transplant team in ICU (5E), ward (4SE), clinic (3F& 8F) and special procedure unit (4S) and interviewed with team members, such as Fellow, coordinators for each organ transplant and research, social workers, nurses, PAs (physician assistant), ARNPs (Advanced Registered Nurse Practitioner), Dietitians, pharmacists etc. I also attended some meetings include Liver and Kidney M&M (mortality and mobility), monthly Liver team meeting, liver tumor conference, radiology rounds etc. In addition, I also joined pre-transplant education class (Liver and Lung) and transplant patients' group meeting.

And I found many differences between here and our hospital for taking care of transplant patients. For example,

1. Immunocompromised patients are at high risk for opportunistic infections. 4SE ward is the unit specific for abdominal transplant patients. There are all single bed rooms in this unit, and it is convenient for patients, visitors and healthcare workers to obtain the hand sanitizer, gloves and masks. Handwashing is an important modality for prevention of infection. I found that everyone obeys those instructions. Now the hospital has an activity of hand-washing guidance for all health providers. They designed the posters with the pictures of faculties on the wall and also displayed the slogan on the screen to remind their faculties.

   In our hospital, someone who take care the transplant patients, they should wear a mask, and the patients also have to do that. But in here, if you maybe have a cold, you should wear a mask when you contact with the patients. Because in transplant doctors' opinion, handwashing is more important than wear a mask, and they think the immunosuppressive agent is the successful key to transplant.

2. The average of hospital stay:

	Kidney transplant (days)	living donor of Kidney(days)	Liver transplant (days)
UWMC	4-7	2-3	7-14
NCKUH	7-14	5-7	>14

   I think it would be in relation to practice, experiences, good discharge planning and medical insurance system etc.

   In here, they have complete and clear care maps for health care providers to use. Good cooperation between team members and good communication are important. In addition, patient teaching is also important. There are many professionals, such as coordinators, Dietitians, pharmacists, and social workers etc. who give patients what they have to know, what they should do, how to adapt their new life, and instruct them some skills for taking care theirselves or their families before leaving hospital.

3. The team combines surgeons and medicine physicians in UWMC. The medicine physicians are the vital member of the Transplant Team not only to evaluate the patients at the first clinic visit and help take care of them before transplant, but also to take care them in the hospital and clinic visit after their transplant. Most of the organ transplant patients have a lot of medical problems, so the medicine physicians give them much better treatment. In addition, surgeons are often busy in operating room, medicine physicians can help to manage their medical needs immediately and make recommendations to the surgeons about patient care.
4. In here, they emphasize the importance of early ambulation. Early ambulation could reduce the complications of bed rest. They encourage patients to get up and move around three times a day at least. If patients have some problems in moving, the physical therapists will help them to leave the bed with some aids, like walkers, and will evaluate their walking performance. Doctors and nurses also assess patients' daily activities every day.
5. For transplant patients after surgery, it is very important to continue follow up. In here, transplant patients return to the clinic to be checked by physicians, pharmacists, coordinators, social workers etc. The team checks not only their physical conditions and medications, but also their psychological problems. Because some of these patients have some problems in adapting to their new life, social workers play the important role of discovering their trouble. Otherwise, we also have to concern about the psychological issues of living (Kidney) donors.
6. The patients after liver transplant, they need to get regular liver biopsy to evaluate new liver function. In our hospital, these patients have to stay in the hospital one or two days, and get biopsy by radiologists in radiology. In here, if the patients' coagulation is normal, they will get regular biopsy by PA or ARNP who were well trained (supervised by physicians and accumulated 50 times) and qualify to practice this procedure at special procedure unit (4S). The patients have to get abdominal ultrasound to make sure the position and would be marked before getting biopsy. After the procedure, the patients need to lie on their right side for 4-6 hours. At the same time, nurses will check their vital signs and observe them, as they may have bleeding tendency. After the observing time, patients can leave the hospital. If the patients' coagulation is abnormal, they will get jugular vein biopsy by radiologists in radiology. This procedure is more complicated than regular biopsy. The patients who get jugular vein biopsy feel more painful than others. After the procedure, the patients are sent to special procedure unit (4S) to be observed by nurses for 3 hours, and then they can go home.
7. During my visit time, I just went into operating room two times. The first time, I saw a living kidney transplantation. Since the living kidney procurement to kidney transplantation, I found the doctors are practiced surgeons. They used less manpower and time to complete the work. In here, the living kidney donors have a short hospital stay, and no more tubes would be replaced. The recipients have a foley catheter; sometimes there would be a J-P drain replaced in the surgical site. During the surgery, the recipients would have a stent replaced that is connected with ureter and bladder, and it will be pulled out at about 3-6 weeks after surgery. About the surgical wound, their wound would

be covered with gauzes 2 days, and then kept clean and dry. Some patients go home with drains.

The second time, I went to Harborview medical center to see the organ procurement (cadaver donor) with Dr. Reyes. I also did not see many people in the room. In Taiwan, surgeons take the organ which they want, so sometimes there are many teams waiting in the room at the same time. This is my first time to see organ procurement, and I saw a different incision method from general surgeries. They said that would be convenient to take organs. And another thing that surprised me, the operator and the assistant are practiced technicians who were trained for organ procurement. In our hospital, all of the surgeries were done by surgeons, even organ procurement. That is not legal in Taiwan.

8. There are three PAs in the transplant team. They are licensed to practice with physician supervision. They are the core persons in the team. They provide primary care for inpatients, ex: taking medical history, performing PE (physical examination), ordering lab tests, Diagnosing illnesses, treating illnesses, and helping the physicians to manage the patients' surgical and medical needs. All of them are the practiced assistants, so they are good assistants for the physicians. And they also can help or assist the junior residents when they receive training in transplant team on the first time.

   In liver team, there are one PA and one ARNP in hepatology, and they seem to do similar jobs. They provide general care for outpatients, include pre-candidate assessment, candidate routine follow up, post-transplant patients' clinic visit, hepatitis C treatment etc. In the clinic, they can see the patient by themselves and manage patients' medical needs or after they assess the patient, they will discuss with hepatologist and give them some recommendations.

   After liver transplant, patients need to stay in the MICU (Medical Intensive Care Unit) for observing one to two days. The MICU ARNP will provide the primary care, monitor the patients' conditions, manage the patients' medical needs, and coordinate with other health care providers. She also instructs junior residents or interns who rotate to ICU.

9. In here, pharmacists are also the main members in the team. The pharmacists monitor patients' drug therapy throughout their hospital stay and also teach them about their medications before they leave the hospital. They join the team rounding and make some recommendations for physicians. They give patients the medications list with samples and a box (called a "mediset") that can help them to organize their medications. The medications list is very clear to describe the drug name (generic and brand name), function, taking time, dosage, and some points for attention etc. When patients return to the transplant clinic, they still monitor patients' medications and answer questions.

10. The clinical nurse coordinators coordinate all of the patients' transplant events. There are two kinds of coordinators: one contact with pre-transplant patients, the other contact with post- transplant patients. The nurse coordinators who take care for pre-transplant patients, they coordinate all of the patients' pre-transplant events. They are often in the pre- transplant clinic, and manage patients' examination data, follow up the schedule of all their tests and visits

during the pre-transplant evaluation. They also chair the transplant education class for pre-transplant patients. After transplantation, the post- transplant nurse coordinators will contact with the patients and families. They are the key contact people for patients and families. They, like case managers, help manage patients' follow-up care and answer their questions and concerns.

Conclusions

The team is the key to a successful transplant. Each member is indispensable. This is the main thing that I studied from here. Another key to a successful transplant is continuing care. Before surgery to leave hospital, the team provides patients health teaching, complete care and long term follow-up. All of the team members have good relationship with patients and families. The team likes a big and happy family, and the members are very friendly and get on very well together. I feel admiration for them. The transplant team is an excellent model for us to learn. I very much appreciate having the wonderful opportunity to study here. Everything in here is unforgettable to me. I will be able to incorporate what I learned regarding to the professional development at UWMC to our continuing education program and implement the team model into our daily practices.