行政院及所屬各機關出國報告
（出國類別：實　習）

外傷醫療連絡員角色功能與醫護品質之服務

服務機關：台北榮民總醫院
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外傷醫療連絡員角色功能與醫護品質之服務

主辦機關

行政院輔導會臺北榮民總醫院

聯絡人／電話

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出國人員

陳嫦華 行政院輔導會臺北榮民總醫院 急診部 技術員

出國類別 實習

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關鍵詞 外傷醫療

內容摘要 一 目的。二過程 外傷醫療連絡員、急診、外科加護病房、重症病房。三 外傷醫療聯絡員角色功能。（一）新加坡中央醫院外傷醫療聯絡員。（二）美國外傷醫療聯絡員（文獻）。（三）結論。四 新加坡中央醫院急診部與台北榮民總醫院比較。五 心得及建議

本文電子檔已上傳至出國報告資訊網

壹、摘要

台灣的醫療水準日益提昇，照護品質也愈來愈受重視，現在各醫院皆強調醫護品質，著重以最有效最科技的方式，讓病患在最舒適的環境下得到最妥善的照護，因此不論醫療或護理，各科不斷研究創新，以提供最優良的醫護系統。當各科不斷進步時，須有人來監測並維持這些新組織架構或措施是否有效進行，是否達到預期目標，亦須有人來傳遞新訊息，作為溝通橋樑，更須有人持續追蹤以確保病患得到完善照護。美國有外傷醫療連絡員(trauma coordinator)，1971 年設置，其角色功能發展至今已兼備以上所需條件，藉由文獻整理及實際所見，將其角色職責描述如下,並比較急診現況後作建議。

目次

貳、目的

外傷病患從創傷、治療、至復健過程，其生理心理社會各層面需持續追蹤和照顧，美國有外傷醫療聯絡員(TNC)設置，協助聯繫溝通及促進照護品質。為提昇外傷照護品質，以下將描述新加坡中央醫院外傷醫療聯員角色功能並經文獻查證與美國作比較,最後簡述急診現況並作建議。

參、過程

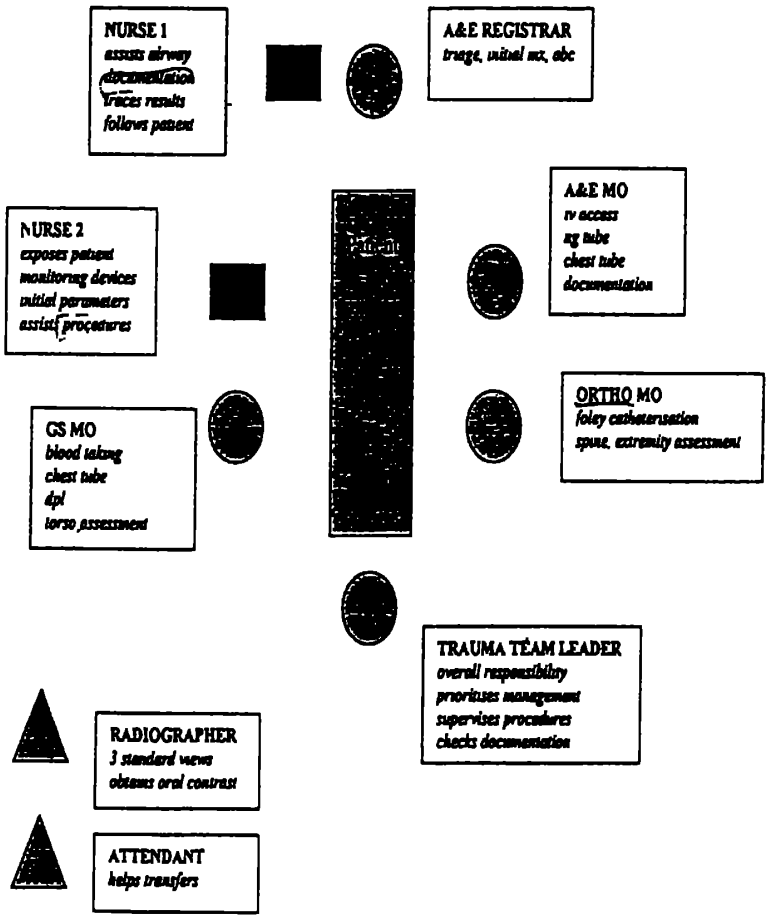
Time	Activity	Venue
2001/12/31 □ 2002/01/04	■ Briefing of TC's daily routine ■ Trauma Mini Lecture ■ Trauma Registry & Audit ■ TC's Roles and responsibilities ■ Collector program ■ AO Documentation ■ Patient follow up	■ Trauma Unit ■ Tutorial room ■ Trauma Unit
2002/01/07 □ 2002/01/11	■ Overview of ED ■ Coverage and structure ■ Role and functions of ED ■ Assignment System ■ Duties of staff at reception ■ Attachment to reception ■ Discussion of Triage assessment ■ Duties of staff at Emergency Ambulatory Care Area ■ Duties of staff at ED Specialist ■ Management of Critical Care Patient ■ Attachment CCA demonstration of resuscitation and trauma equipment ■ Organization of department educational program and courses related to emergency/trauma nursing	■ Department of emergency ■ Reception area ■ Triage area ■ Ambulatory area ■ Tutorial room ■ Critical Care area ■ Tutorial room/NM's Office

	■ Quality Management ■ ED record and documentation computerized record	■ DEM
2002/01/14 □ 2002/01/18	■ Assessment of Trauma Patient ■ Management of Trauma Patient ■ Haemodynamics ■ Infection Control in SICU Quality Management ■ Pain Management ■ Nursing Documentation ■ Management of Sepsis ■ Continuous Renal ■ Replacement Therapy ■ Ethical Issues ■ Pharmacology in SICU ■ Management of Fluid and Electrolytes	■ SICU
2002/01/21 □ 2002/01/25	■ Trauma audit ■ Collector's Hands on ■ Trauma mini lecture ■ International Medical Services ■ Patient rehabilitation ■ Trauma Registry – Date Extraction ■ Trauma Registry –Query and report writing ■ Trauma performance Improvement ■ Mortality & Mobility round	■ Trauma Unit ■ Tutorial room ■ Trauma Unit

一、外傷醫療聯絡員角色功能

(一)新加坡中央醫院外傷醫療聯絡員

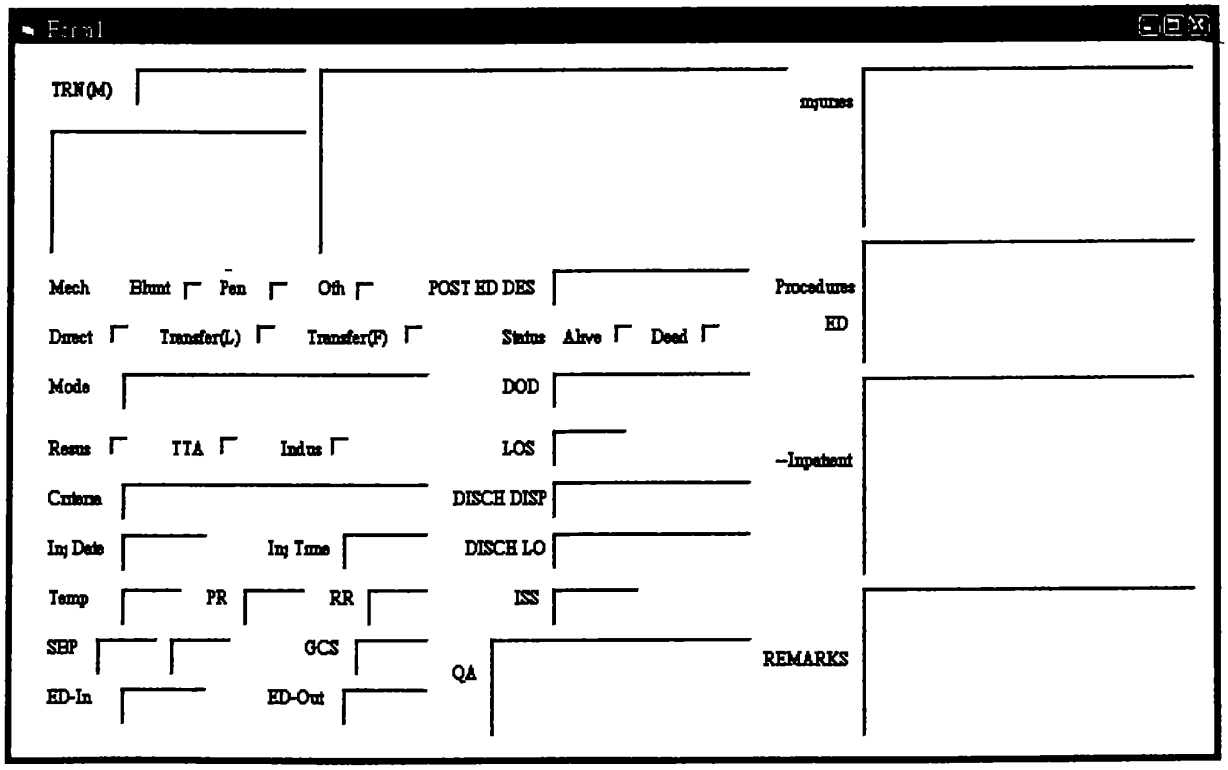
新加坡中央醫院 1992 年成立 Trauma system ,trauma team 共有五組成員輪值，分別為 1.Vascular 2.Breast/Trauma 3.Head & Neck 4.Gastro 5.Hepatic 。Trauma team 成員如下圖。



1998 年設置外傷醫療聯絡員(TNC)直屬於一般外科，目前設置二名，主要功能負責外傷病患資料收集，及聯繫相關會議成員。

1. 資料收集：

每日清晨資訊室提供前一日住院外傷病患名單及動向，通常這些病患是 Trauma Registry 的收案對象，一般 TNC 利用如下之表格(但若為嚴重外傷則改用附錄二所附表格)至各病房收集各病資料，內容包括：基本資料，受傷機轉，到院前，轉診處置，急診處置，住院治療過程。並利用電腦軟體，將資料輸入，內容如附錄三。藉由資料收集過程，發現醫療處理過程問題，向外科主任報告，並聯繫會議相關成員共同開會檢討。



2.聯繫會議相關成員：

1. trauma mini lecture 二星期一次，安排教學活動或檢討會議
2. Mortality & Mobility ，一星期一次，由醫師挑選個案作報告及檢討，
3 Conference：三個月一次，挑選一病患，從入院治療至出院作全面探討。

3.參與 trauma team ：

從外傷病患至急診，由急診醫科決定是否需 trauma team activation 如附錄四，criteria 如附錄五。需要時，由急診傳呼 trauma team 值班成員，所有成員儘可能迅速抵達，TNC 協助聯絡各科檢查，處理文件記錄

4.追 及 DOA 病患解剖結果：

每個月列出 DOA 死亡病患名單，予解剖室，將解剖室給予之解剖結果記錄至電腦，解剖結果可發現病患處理過程及死亡原因是否可被預防或改進。

5.統計報告：

一年作一次統計報告，包括嚴重外傷及一般外傷病患之總數。

(二)、美國外傷醫療聯絡員

1.背景

美國 1966 年第一座外傷中心成立於芝加哥庫克郡醫院(COOK COUNTY HOSPITAL)，美國聯邦政府鑑於當時因意外致死或傷殘的人數增加，決定再設立外傷中心，1971 年 Ms. Romano 設計一套護理課程，於庫克郡醫院為特別挑選出的八位護理人員完成訓練，並將他們分派至各個外傷中心教導其他護理人員關於外傷病患照護課程，之後將這八位護理人員稱之為 Trauma Nurse Coordinator (TNC)。

隨著外傷護理專業的發展，外傷醫療連絡員(TNC)的設置愈來愈多，角色功能也隨之增加，1975 年馬里蘭州緊急醫療服務系統(EMS System)首次指出 TNC 角色著重於訓練、指派及評值的工作，1987 年外傷護理工作網(Trauma Nurse Network)和美國外傷協會(American Trauma Society)的 TNC 小組委員會更於華盛頓召開國際討論會，由來自全國各地區經驗豐富的 TNC 專家，規範 TNC 的角色，強調藉由參與臨床、專業及公眾教育、研究、品質保證、管理等五方面活動，可使外傷照護在外傷照護系統中提升至最理想的狀態，以下將對角色職責作描述。

1988 年 Mary Beachley 提出 TNC 除了專業的知識技能外，須具備建立外傷病患及家屬照護準則，並協同外傷管理者擬定照護計劃及監控的能力。

2.臨床功能

TNC 臨床角色會因環境需要或體系的不同而改變，病患到院前，與緊急醫療網作緊密聯繫，了解病患來源、病況、到院前處置及現況，於醫院內確認外傷小組及相關人員待命，病患到院時，協助聯絡安排檢查，必要時依循 ATLS 處理流程，教導護理人員並提供諮詢功能，爭取在最短的時間內給予病患最有效的幫助，當情況穩定後，需持續追蹤及審視檢查流程和照護計劃，以確保病患在住院治療觀察中沒有遺漏任何該有的處置和注意事項，使病患在最周詳的計劃中迅速康復，並得到最妥善的照顧，離開醫院前應有完善的出院計劃，必要時協助聯絡心理醫師、社工、復健中心等並提供其他相關資源和訊息，出院後應持續追蹤癒後情況，包括生理、心理及社會等，最後並適時給予成員及轉介而來的醫院或人員表示回饋。

在審視病患處理過程及照護計劃中，發現問題並直接向主管階層報告，協同管理者擬定可遵循的計劃和規範，必要時邀請相關人員共同檢討並提醒改善，使外傷照護品質維持在擬定的水平上。

3.品質保證功能

提昇外傷照護品質是 TNC 最重要的職責之一，他必須具備針對外傷照護，設計及建立一套關於品質保證條件及指標的能力，並應用於臨床，持續監測，發現問題，提出探討，

並作改善，或藉由討論會，研討並建立更優良的處理方式，以維持並促進照護品質，而這些條件及指標的組成包括外傷病患註冊登記，病患醫療處置過程及照護計劃的審核，病患追蹤，急救過程探討和討論會。外傷病患註冊登記包括病患基本資料、發生原因、發生時間、救援時間、到院時間、傷害狀況、處置措施等多項因子，藉由收集資料、統計分析後，發現問題，提出改善，並可設定閥質，擬定指標或規範，這部分在開始階段是最基本且最花費時間，TNC 用大部分時間於資料收集，目前有許多醫院運用商業設計軟體或依需要自行設計來輔助，當合適的工具建立後，TNC 將能更有效的發揮功能。病患追蹤包括了解個案出院癒後、復健情形和病患及家屬照護問題，並擔任衛教或諮詢的角色。問題個案，如傷口感染，照護問題等等，可過濾原因，並直接聯繫相關管理者，必要時通知相關人員，藉由討論會，共同檢討改善或訂定新計劃，討論會亦可作訊息分享及交流，藉由經驗交換及新知傳授，一起成長進步，共同促進照護品質。

4.教育功能

藉由討論會，TNC 有責任教導小組成員新擬定的處理流程，透過參與院內或國際性的討論會，將新的知識與理念，傳達照護成員，其教育的對象包括相關醫療人員及公眾團體。

對內定期安排在職教育，如 ATLS、ACLS 等，必要時提供現場示範教學，當病患穩定或離院時，護理計劃、出院照

護及復健措施更不容忽視，指導護理人員計劃書寫，提供相關知識，像諮詢者角色，扮演護理人員角色模範。教導新進成員知識技能和既定原則，確保所有外傷小組成員獲得新資訊，並遵循共同方式，給予病患最妥善的照護。對外教學可擴展至到院前照護的緊急醫療組織，依據外傷特性，示範適當的處理方式。公眾教育可藉參與講習活動，宣導職業傷害預防和傷害防治，如安全帶使用等，並建立外傷病患復健方式，外傷照護及回診追蹤理念，適時提供可諮詢的資源。

5.研究功能

新觀念和措施的建立來自各領域的研究結果，而 TNC 可以提供許多相關資料予各科醫師、護理人員，並透過臨床經驗，學術交流，組織新架構，建立新觀念，發展新規範，故 TNC 應具備獨立研究的能力， 外傷病患註冊登記可提供研究相當豐富的資源，所以註冊登記工具的選擇與設計非常重要，通常需要主管協助，有完整的資料登入後，TNC 負責統整及分析，除了確保醫療照護品質維持在訂定的水平外，並可針對不同的因子，加以研究並發表結果，進一步發展改善方案，互相交流，分享經驗。這份資料來源的工具須由 TNC 及相關主管不斷評估及作適度改變，它將會隨著時間、趨勢、和需求的不同，而被重新訂定和設計。除了個別職務外，還可加入團體，參與護理研究計劃。所有的研究需被記錄且傳遞，作為另一次研究的依循。

6.管理督導功能

當整個組織系統建立完備後，TNC 負有持續監測指標，督導新方案及計劃進行的責任，護理方面藉由審核、教育、臨床指導，更可成為理想幫手及管理者。多位學者表示 TNC 的角色應與管理有緊密的連結，雖然他/她的功能可被分為教育、研究、諮詢、協調合作等等， 基本上最需要的是隸屬於一個非常有權利的組織來源下，他們建議 TNC 隸屬醫院最高主管下，直接向副主管級的管理者作報告，如此才能確保 TNC 可與各部門聯繫合作，讓其職務功能的運作更順暢。

TRAUMA COORDINATOR S.G.H.&U.S.A

S G H	U S A
1992 trauma system 1998 trauma coordinator (under general surgery)	1966-Trauma center opened at Cook County Hospital in Chicago 1971-Theresa Romano, RN developed a Trauma Nurse Course for training nurses 1971-First Trauma nurse coordinators in Illinois 1975-Maryland state EMS system established Trauma Nurse Coordinator position 1987- First national census forum on Development of Trauma Nurse Coordinator Role, Washington D C
clinical activities • Participate trauma team • Collector program **qualities assurances activities** • Coordinates trauma care conferences • Coordinates trauma mini lecture • Coordinates Mortality & Mobility **Research activities** • Trauma Registry **Administration function** • Monitors effectiveness of trauma	**clinical activities** • Integration of team approach to trauma care • Demonstrates individual accountability • Assists staff in problem-solving • Reviews the care plan • Supervision of written care plans • Participates in planning, developing, implementing, and evaluating the trauma program • Patient care follow up • Gives feedback • Coordinates nursing care aspects program with nurse managers • Establishes, in collaboration with

program through Q/A activities	the trauma director, resuscitation protocols setting priorities for care **qualities assurances activities** • Daily review of emergency department log • Maintains trauma registry , supervises the data collection , analyzes data , prepares reports , and distributes reports , to appropriate team members • Analyzes the trauma care system for efficiency , safety, and effectiveness of standards and protocols established • Provides follow-up on problems identified during trauma care critiques and documents action taken • Coordinates trauma care rounds and/or care conferences • Participates in multidisciplinary case review • Conducts nursing audits **Professional and public education** • Updates trauma rounds and trauma conferences • Maintains current knowledge of trauma care via literature review , trauma rounds and trauma conferences • Participates with communitywide

	trauma education programs for both pre-hospital care providers and general public • Role model for other trauma nurse through demonstration of excellence in practice • Participates in hospital wide trauma education for support ancillary services **Research activities** • Data collection • Trauma registry • Identifies and monitors specific investigations with the trauma population • Translates relevant scientific knowledge into trauma nursing practice • Initiates nursing research for trauma. **Administration function** • Initiates corrective action measures for problems identified in trauma programs • Implementation of protocols and standards • Staff for trauma management committee • Monitors effectiveness of trauma program through Q/A activities • Preparation of trauma program reports

(三)、結論

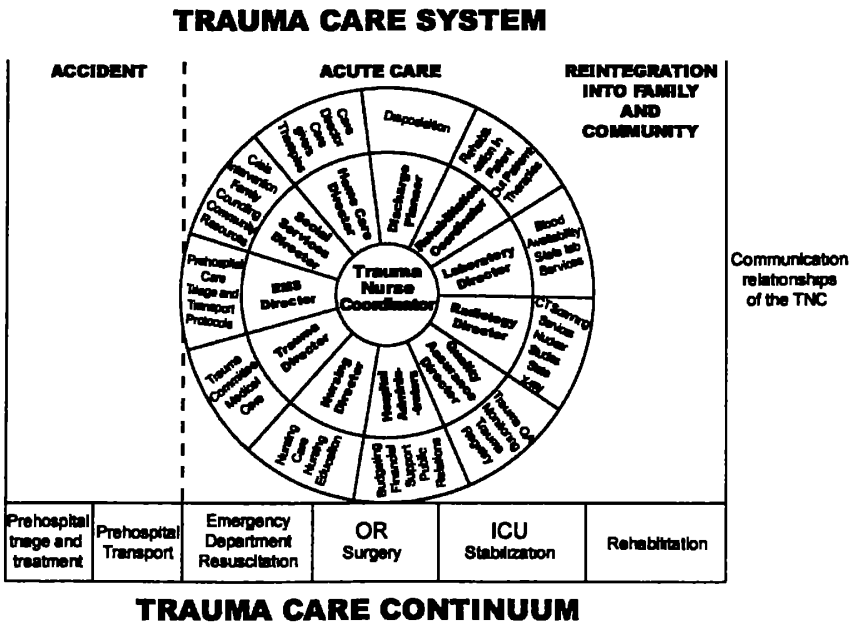
TNC 的功能隨時間而日漸廣泛，美國有些地方甚至藉由他們統計分析後的結果，作為立法的根據，如兒童安全座椅的使用。因角色發展需求，他們的經驗與基本條件愈受重視，在 1992 和 1993 年美國外傷協會(American Trauma Society)為 TNC 的角色與特性作調查並描述，75%學歷至少是學士學位以上，甚至是碩士，他們必須具備研究的能力，99%平均有 14.9 年護理工作經驗；70%TNC 表示她的職位相當專科護理師、護理長、護理或部管理者，7%認為相當護理副主管、護理管理者。

他們與各部門的關係緊密結合，包括從到院前緊急醫療組織，在院中護理、醫療、放射科、檢驗科和醫院管理者，到出院的出院計劃、復健、社工及家庭照護管理者等等，1988 年 Beachley 等人將 TNC 與醫院內及醫院外各組織的關係做詳細說明(如附圖)。

美國 TNC 的角色發展至今，從臨床、教育活動、參與研究、品質保證到管理督導功能， 已備受肯定並獲得重視，許多研究及相關結果報告確實證明他們對促進外傷照護品質，傷害復健及預防的貢獻，他們因興趣與實際需求無時無刻不斷充實自我知識技能，增廣視野拓展與各領域層級關係，1996 年 ATS 首次發表以 TNC 為核心的課程，來協助新進 TNC 獲得所需的能力。儘管角色涵蓋廣泛，他們會因醫院需求的不同，醫院賦予權力的不同而扮演不同的角色與功

能，因此他們具有相當的可塑性、創造力及能力，他們的角色功能仍持續發展中。

台灣的醫療水準不斷提昇，各醫院各領域不斷要求自我突破，當每個體系都在發展時，須有一些人來將他們做聯繫，作最適合的運用，協調過程中產生的衝突，隨時督導每個環節，確保醫療照護品質維持在一定的水平上，並且監測新指標，是否達到實際的需求，醫療過程結束後，病患後續問題是否得到安置。病患從到院前、臨床照護到出院計劃、復健、追蹤的聯繫與處置，都需被緊密結合及監測，這些功能可能無法被各領域的發展所涵蓋，但他卻需要同時擁有各領域的資訊及醫療照護的知識技能，因此 TNC 的設置是相當重要的，在醫療團隊中他可結合並傳遞最新知識技能，使病患得到完善的照護，進而提昇醫療照護品質。



二、新加坡中央醫院急診

病患分三類:躺床→1&2 類
可自由活動→3 類
外傷病患：嚴重外傷→急救室
擦傷,撕裂傷→小手術室
骨折→石膏室
就診流程：救護車、自用車送入□急救室（掛號&檢傷）→住院或留觀。
步入→掛號→檢傷→候診→留觀住院或出院。

1. 接待處：

負責勤務人員指派及登記，協助直入急救室病患掛號。

2. 掛號：

病患至急診先排隊掛號，後至休息區等候唱名檢傷。

3. 檢傷：

設置四間，每間皆有全套檢傷設備，病患唱名檢傷，保有相當隱私，凡是因不適需坐輪椅者皆改躺床，檢傷二類，直接入急救室，迅速隱密。

三類病患到候診區等候唱名診察。

4. 急救室：分二區;一類診療區和二類診療區

(1) 一類診療區：共六間，鉛板隔間，皆有全套急救及檢查設備，床邊X光四部，床邊電腦三台，放射科人員 Stand by ， 檢查迅速,病患不須為配合檢查而四處挪動，節省大量時間人力，且可避免因檢查過程中病況改變而未被注意。活動式電腦設備，對於重症病患有極大幫助，在急救或緊急處治過程，醫護人員不須

為醫囑報告而離開床邊，病患永遠在視線範圍內

(2) 二類診療區：共八間獨立診察室，皆有全套檢查設備和急救設備，皆有床邊電腦，醫師視診後可立即給予治療，未有電腦及儀器設備不足的困擾，病患迅速得到處理，滿意度信賴度提高。

(3)自動門可將家屬與病患隔離，家屬於休息區等候消息，急救室病患保有相當隱私。

(4)病患平均分配予各值班醫師，看診效率提高。

(5)床位安排依病患意願（如單人房、雙人房），通知病房由病房立即給床，該科滿床時應負責暫借其他科床位，病患幾乎皆有動向，留觀人數減少。

(6)以病患為中心，醫護人員就病患，放射科人員接獲檢查通知，自行推病患完成檢查，病患滿意度提高。

(7)有一大型電腦液晶螢幕可顯示現存病患資料診斷動向等等，可清楚了解現有病患處治動向。

5. 診察室：

共六間，每間皆有全套檢查設備及床邊電腦，負責檢傷三類病患，由醫師視診並給予治療檢查，病患滿意度提高，即使久候，也無怨懟。

6. 小手術室：

設有專屬休息區及二間手術室，一間提供小傷口治療及縫合，另一間似開刀房，提供嚴重傷害治療，病患進入皆需須更換手術室專用鞋，盡可能保持乾淨無菌

狀態，避免傷口感染。

嚴重外傷病患通常檢傷一類至急救室處理，由急診醫師決定是否通知外傷小組人員，再以傳呼方式連繫。

7. **會診室：**

共四間，診療後需會診病患，先至會診休息區等候，待會診醫師到達後，等候唱名會診。

8. **治療室：**

設有超音波，檢驗，蒸氣吸入治療等設備，主要提供三類病患治療。

9. **觀察區：**

因急診待床人數極少，故留觀病患每日少於十人，且小於二十四小時。

10. **國際醫療服務**(International Medical Service,IMS)：

IMS 設置，針對外國人士提供服務，包括到院前、入院、出院所有相關醫療聯繫和病患家屬的安置，病患及家屬受重視和照顧，信賴度滿意度提高，院譽廣播

	新加坡中央醫院	台北榮民總醫院
電腦系統	單一電子資料庫之共作系統	電子資料庫系統各自獨立
檢傷	1 設置四間，四套檢傷設備，獨立空間	1.單一開放檢傷櫃台及設備空間

	2 檢傷與掛號連結作業 3.先掛號後檢傷	2 檢傷與掛號獨立作業 3.先檢傷後掛號
掛號&計價	獨立分開	共同窗口
急救室	1 一類： (1)共六間獨立空間，鉛板隔間 (2)全套急救及檢查設備，床邊X光四部，床邊電腦三台 (3)放射科人員 Stand by 。 二類 共八間，獨立診察室皆有全套檢查設備，皆有床邊電腦。 2.自動門可將家屬與病患隔離，家屬於休息區等候消息急救室 3.病患平均分配予各值班醫師 4.床位安排依病患意願（如單人房、雙人房），無留觀待床病患 5.以病患為中心，醫護	1.一類： (1)單一開放式活動空間布簾分隔 (2).一套電腦及印表機 (3)病患就放射部執行檢查 二類.分二間，二供氧抽吸設備，及二部電腦 2 單一開放式活動空間，非醫療相關人員進出容易。 3.醫師決定病患人選 4 床位由病房總醫師決定，急診滯留大量留觀人數 5 以醫師醫療人員為中心，病患就各檢查處

	人員就病患，放射科人員接獲檢查通知，自行推病患完成檢查 6 有一大型電腦液晶螢幕可顯示現存病患資料診斷動向等等。	6 病患動向採人工被動查詢作業方式
診察室	共六間，每間皆有全套檢查設備及床邊電腦，獨立隱密，負責檢傷三類病患，由醫師視診並給予治療檢查。	共五間小房間和一大開放式空間以應付大量病患，缺乏完整檢查設備及電腦設備，病患隱私不受保障
治療室	設有超音波，檢驗，蒸氣吸入治療等設備，主要提供三類病患治療。	活動式檢查治療設備以應用大量病患，相對產生病患隱私不受保障問題
觀察區	1 每日留觀病患少於十人 2.皆留觀小於二十四小時 3 留觀待床人數極少。	1.每日留觀病患 40-65 人 2 留觀小於二十四小時佔 65-75%， 3. 留觀待床人數佔 30-65%
平均候診時間	55-70 分鐘	20-25 分鐘

肆、心得

每個領域都持續不斷的在發展，相信 TNC 的設置是台灣目前最需要的，美國從 1971 年至今已經證明他們的功能及重要性，他們甚至設計網站，可連結各地所有統計資料，作全面性的分析和比較，並提供知識訊息互相交流。藉由文獻整理和實際所見，作分享與概述，相信 TNC 在促進醫療照護品質上，扮演重要的角色。每個專業都應受尊重並被平等對待，也許對 TNC 的角色認同剛開始會出現問題，但是當角色愈被認同，其功能愈能發揮。

一個月的新加坡中央醫院訓練,發現他們主要著重於服務品質,利用大量先進的硬體設備,建立醫院形象,每年最少一次儀器設備及環境大更新,使醫院感覺溫暖舒適安全,先進的儀器設備搏得病患及家屬的完全信任,加上良好隔離和休息區的設計,在醫院接手病患後,家屬完全信賴並於休息區等候,即使任何人為因素導致病情改變,家屬對醫療不會產生質疑,當然也鮮少糾紛,IMS 的建立除了對外地人發揮實質幫助外,更使醫院名聲遠播國際,慕名就醫的病患不計其數,縱使住院醫療費用相當昂貴,仍可吸引許多人就醫而毫無異意

最厲害的是醫院資訊系統,醫療相關知識被設計的相當完整且有組織,擁有優良的網頁設計吸引各地人士瀏覽,更鼓勵及接受國內外各領域相關人員到院受訓,費用昂貴, 課程所有內容皆由醫院中央電腦系統可取得,多為學理概論,不一定完全落實應用,甚 至 課 程 內 容 編 纂付費才

可擁有,並可對外販賣,增加收入來源,同時廣播名聲。醫院大膽投資後,其實回收更多,糾紛更少, 聲譽更好,流傳更遠。

其實台北榮民總醫院,做的更多也更好,每個人學理知識都豐富,臨床能力也優越,我們的訓練系統更是完整踏實,訓練出來的人才可獨當一面,工作表現也受肯定,我們的內在如此優良,但為何醫療糾紛不斷,候診時間是新加坡中央醫院的三分之一,病患卻抱怨連連,每個人都具備豐富知識和實務經驗,病患卻仍偶有質疑,收費低於新加坡醫院二分之一以上,病患家屬仍覺太過昂貴,不盡合理。也許是對環境對人事不夠信任,心理的需求沒有得到滿足,或者是對有意無意所看到的醫療處置不完全理解,又沒有得到清楚合理的解釋,使得我們付出這麼多幫忙這麼大卻得不到相對正向的回饋。雖然內在的充實很重要,但外在的包裝宣傳也不可忽視,院內資訊系統統整,資料庫系統連結,網頁設計統一規劃,對教學實務,醫院聲譽,病患資料,及相關人力作業皆有相當大的幫助,增添及翻新環境、儀器等設備除造福病患外,更可節省人力,使病患家屬滿意度信賴度提高;廣設隔離和休息區,病患得到應有的隱私與尊重,家屬得以休息等候,減少診療時不必要的干擾與誤解,滿意度信賴度提高,相對的醫療糾紛減少,醫病關係改善,滿意度提昇,病患增加,收入提高,院譽遠播,再加上外傷醫療連絡員對病患持續追蹤聯繫及協助促進醫療品質,像提供保證與售後服務一樣,結合現有內在的學識經驗,發展外在資源,環環相扣,相信正面的影響是全面性的。

伍、建議

急診現況

VGH	SGH
Trauma Team Standby	Trauma Team On Call
檢傷及病歷電腦化	檢傷及病歷電腦化
檢傷與掛號獨立作業	檢傷與掛號連結作業
電子資料庫系統各自獨立	單一電子資料庫之共作系統
急診資料庫可提供相關資料	急診不願與 TNC 共享資料庫

急診病患照護問題

1. 電子病歷推行起步,許多資料仍採手寫,易流失且不夠完整
2 病患至病房後缺乏持續追蹤
3. 急診診斷與與住院和出院診斷可能不同,如果可與住院系統連結,利用 ICD-9 比對,應該可解決,但病患住院和出院診斷未必會被重新輸入
4. 嚴重外傷病患需持續嚴密追蹤治療
5 病患創傷治療至出院過程,可能面臨生理、心理、社會及經濟問題,無法持續予以協助和追蹤

一、資料收集部份

將急診電腦連結並分析,分 Trauma &non-trauma,作急診全面統整

(一) 檢傷與掛號連結作業

檢傷與掛號設置同一櫃檯,共同進行,以提高作業效率,縮短等候時間

(二) 連結檢傷電腦與電子病歷

各區電腦作業螢幕增加下列選項,以提高病歷資料完整性

1. 檢傷·

ISS＋EMS------

Cause
Alert time
Arrive scene time or 119 or ambulance
Arrive P'T time
Left time
Arrive Hospital Time
Facility (walk ambulance)

2. 掛號室：

Demographic + relative + transport (source) + departed ER time + status + 動向--

Discharge to--- + time
Transfer to --- + time
Admit to --- + time
Death to --- + time & leave ER time

3. 外科急救室：外傷病患病歷設計可加入

(1) cause of injury primary E____ specify____

secondary E____ specify____

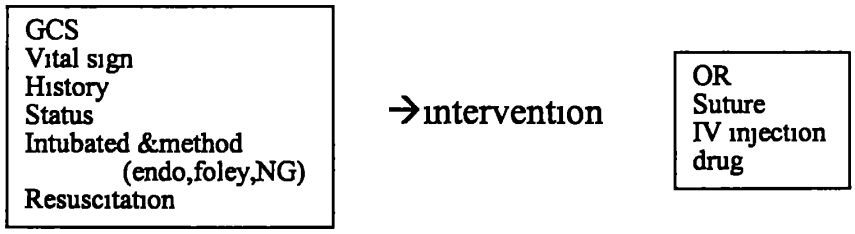
Place of injury: E____ specify____

Work related____ protective devices____ if other

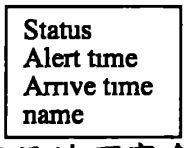
Injury date &time
Injury location information
APACH Score____ AP____

(2) Pre-hospital scene & en-route intervention

(3) In-hospital--



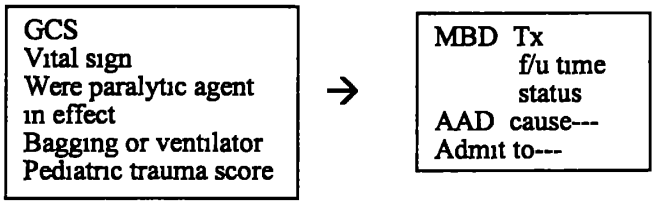
(4) Consultant-



每一科別下皆設計可寫會診及建議的欄位

(5) Arrangement order time &prepare time &on call time

(6) Department-



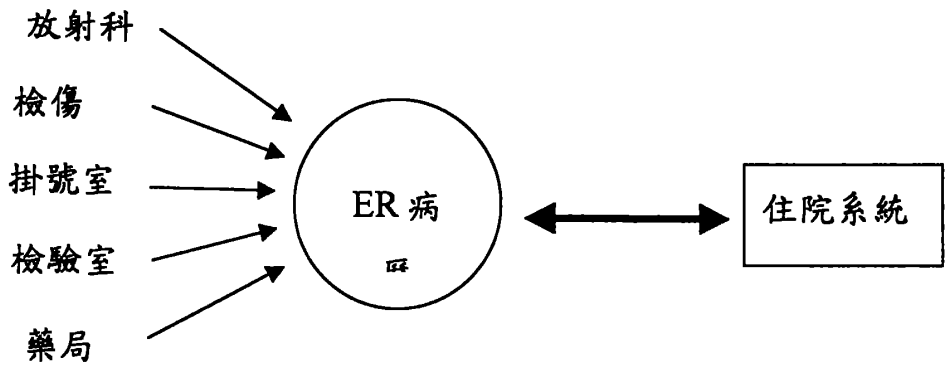
(7) 考慮加入附錄 3

(三) 連結檢傷電腦與電子病歷

病患資料及主訴等可立即得知,減少重覆作業,縮短問診時間

(四) 急診病歷單一資料庫化

檢驗報告及治療處置可同時得知,迅速且清晰,增加病歷完整性



(五) 自動資料庫分析系統

提供研究資料來源,定期統整分析報告,監測指標,以達品質保證功能

特點

4 提高病歷完整性,使其詳細易閱讀

5 減少重覆輸入動作,節省時間及人力

6 利於統計分析,發現問題,進一步藉由各討論會,反應問題,作為教學依循,以提昇醫護品質

7 可持續嚴謹監測外傷和急診照護品質

8 收案病患較齊全

9 爭取更多時間,運用於病患追蹤,傷害預防,各部門聯繫,及品質保證功能部份

二、病患持續追蹤部份

當電子病歷完備後,可在短時間內,了解病患動向和療程,經追蹤,使照護過程及病程改變得以持續且詳細交接

病房因病歷未完全電腦化,需人工作業追蹤,且照護過程,相關會診及病患等等問題,未必被發現或有適當機會討論,如有詳細病患資料來源,從入院直到離院照護,透過持續追蹤,將可發現過程中產生的問題,緊密聯繫各領域,反應予相關人員,並可適時提供病患諮詢訊息,以促進照護品質

三、急診設備及需求建議

(一) 更新及增加急診硬體設備：例如電腦、檢驗儀器、監測儀器、推床設備等等

(二) 建立以病患為導向之醫療服務系統

病患為中心,醫療檢查人員就病患執行醫護作業

(三) 檢傷掛號連結,現急診進行中

(四) 建立資料庫連結系統

電子病歷化,各單位電子資料庫連結,視需要而列印,否則於病患離院時,列印總病歷留存病歷室,病歷將可更完整詳細,病況交接更清晰,容易保存不易遺失,且可減少不必要的影印及紙張耗費(需有配套措施確保病歷不外洩)

(五) 設置一似 IMS 功能之組織,提供重症病患及其家屬安置、聯繫、諮詢服務,

(六) 增設病患家屬休息區,診察區急救室適度隔離病患與家屬,使病患保有絕對隱私,診療過程不受干擾,可提高病患及家屬滿意度和信賴度,進而減少不必要糾紛

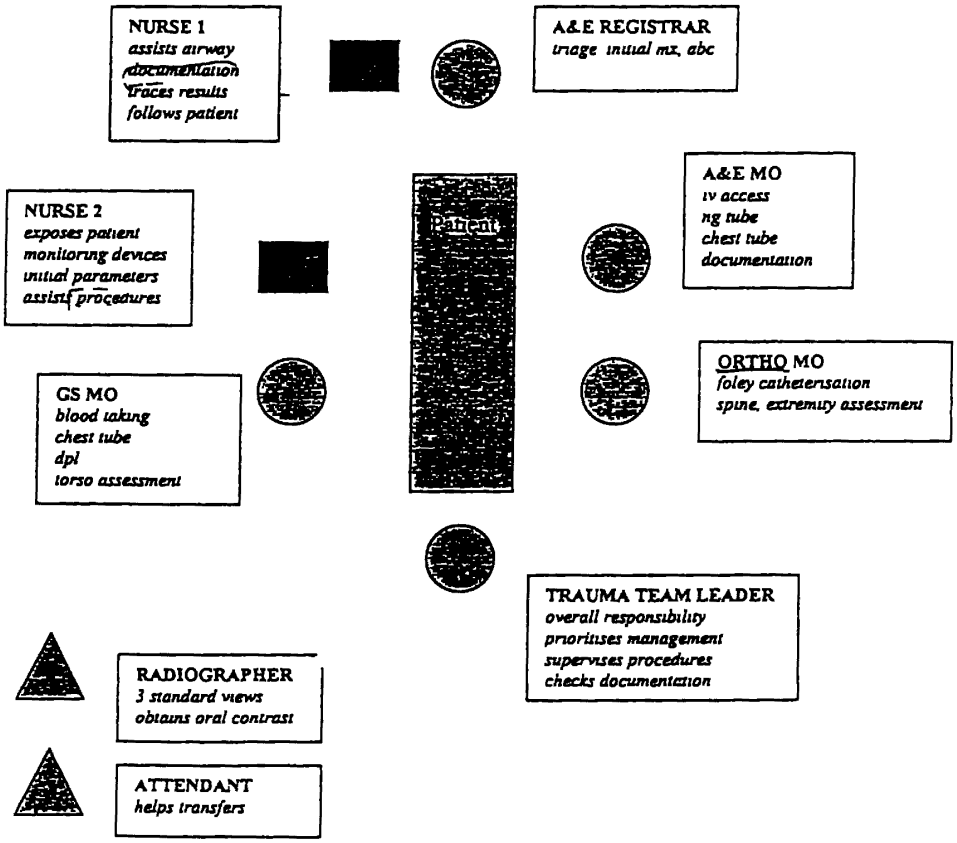
附錄一

TRAUMA TEAM

1 The Trauma Team (TT) is responsible for the resuscitation and initial management of a multiply-injured patient

2 The core team comprises 5 doctors, 2 nurses, a radiographer and a health attendant The trauma team leader (TTL) will be a senior general surgeon He will work with a team comprising an A&E Registrar, an A&E MO, a General Surgery MO and an Orthopedic MO Doctors involved in the trauma team should have completed the Advanced Trauma Life Support Course (ATLS)

3 Each member of the team will have specific duties This horizontal organisation allows tasks to be performed simultaneously The trauma team layout and each individual member's role is as outlined below



4 Additional disciplines as deemed appropriate by the Trauma Team Leader may be activated when the need arises (Anaesthesia, Neurosurgery, Radiology, Plastics, Cardiothoracic Surgery and Obstetrics)

5 All trauma team members should practise universal precautions Waterproof gowns and gloves should be used for all trauma resuscitations

6 The decision of the Trauma Team Leader is binding Any disagreements can be brought to the attention of the Trauma Director the following day

☐ED ☐IP ☐DSC ☐F/U Remarks _____

Trauma Number _____

Admitted __/__/____ __:__

Discharged __/__/____ __:__

Name _____

ARN _____

• Male / Female • Race C / M / I / O

DOB __/__/____ AGE ____

ACCIDENT & PREHOSP DATA

MECHANISM OF INJURY

Date _____ Time ____

cause process

SAFETY DEVICES Yes / No / NA

Specify _____

Mode of arrival

☑Ambulanc ☐Air ☐Private

☐Walk-in ☐Others

Transferred Yes/ No

Report Avail Yes / No

Transferring Hospital _____

Prehosp Standby Yes/ No

Resus Room Yes/ No

ED TTA Yes/ No

TTA Time ___/____

Clinical Data

	SCENE	ADM	LAST
TIME			
TEMP			
PULSE			
RR	-		-
BP			
GCS	_/_/_	_/_/_	_/_/_
PAED			

ED INFORMATION

Procedure	Pregnancy Test + / - / NT / NA	Remarks
☐CPR		
☐Intubation	Oral / nasal	
☐Chest tube	Right / Left	
☐IDC	Suprapubic / in-dwell	
☐FAST		
☐Splints		
☐T&S		
☐Others		

	Remarks
☐CT Head	
☐CT Thorax	
☐CT Abd	
☐CT Pelvis	
☐CT _____	
☐CT _____	

OPERATIONS

DATE	TIME	SURGEON	PROCEDURE

INJURIES CODING

HEAD/ FACE	UPPER/ LOWER LIMBS
1	1
2	2
3	3
4	4
5	5
6	6
NECK/ SPINE	ABDOMEN/ PELVIC
1	1
2	2
3	3.
4	4
5	5
THORAX	OTHERS
1	1
2	2
3	3.

DATE	COMPLICATIONS	REMARKS

Discharge Status Alive / Dead

Rehab Date ☐

Total ICU Stay ☐ Total Hospital Stay ☐ Dietary Date ☐

Discharge Discipline ☐

Discharge FIM ☐☐☐

DATE/ TIME	NOTES

Medical Hx _____

Continuation notes

PAGE

附錄二

Data Form Facsimile | Inst # xxxxx | Medical Record # _____ | Patient Account # _____ | Trauma # xxxxx

SECTION I DEMOGRAPHIC DATA

Social Security # ___-__-____ Phone (___) ___-____

Patient Name Last _____ First _____ MI _ Alias _____

Address

Street _____ Apt ____ City _____ County _____

State __ Zip _____

Race _ Sex _ Date of Birth __/__/____ Age ___ an _

Relative/Guardian Relationship _____ Guardian _ Phone (___) ___-____

Name Last _____ First _____ MI _

Address

Street _____ Apt ____ City _____ County _____

State __ Zip _____

Causes of Injury

Primary E____ Specify _____

Secondary E____ Specify _____

Place of Injury E849 _ Specify _____

Work Related _

Protective Devices _ _ If Other _____

Injury Type _ Injury Date & Time __/__ __ @ __ __ APACHE Score __

Blunt Injury Cause _ Injury Location Information

Penetrating Injury Cause _ City _____ County _____ State __ Zip _____

SECTION II PREHOSPITAL & TRANSFER DATA

Primary Transport

Transport _ If Other _____ Service # _____

Report Available _ EMS Report # / Police Crash Report ID # _____

Secondary Transport

Transport _ Service # _____ EMS Report # / Police Crash Report ID # _____

Triage Rationale __, __, __ __, __ Was patient extricated? _ Time Required ___ (min)

Transport Times	Primary	Secondary		
Call Received	__/__/__ @ __ __	__/__/__ @ __ __	Patient Leave for Destination	__/__/__ @ __ __
Call Dispatched	__/__/__ @ __ __	__/__/__ @ __ __	Time Arrive at Destination	__/__/__ @ __ __
En Route	__/__/__ @ __ __			
Arrive at Scene	__/__/__ @ __ __		Total Time from Dispatch to Scene	__ __
Arrive at Patient	__/__/__ @ __ __		Total Scene Time	__ __
Trauma Alert Called	__ __/__ @ __ __		Total Patient Contact Time at Scene	__ __
Left for Meeting Location	__/__/__ @ __ __	__/__/__ @ __ __	Total Time in Transport to Meeting Location	__ __
Arrive at Meeting Location	__/__/__ @ __ __	__/__/__ @ __ __	Total Delay Time at Meeting Location	__ __
			Total Time Left Scene to Arrival at Destination	__ __

Meeting Location of Primary & Secondary Transport

_____ Total Prehospital Time __ __

Transport from Referring Facility _ If Other _____ Service # _____

Report Available _ EMS Report # / Police Crash Report ID # _____

If Referral

Referring Hospital _____ Type of Referring Facility

City _____ Rationale _____

	Date	Time
Arrival at Referring Hospital	__/__/__ @	__ __
Departure from Referring Hospital	__/__/__ @	__ __

Late Referral

Scene and Enroute Interventions

__ __ __ __, __, __, __ __ __, __ If Other _____

Referring Facility Interventions

__ __, __ __ __, __, __, __ __ __ If Other _____

Institution # 339-9 | Medical Record # _____ | Patient Account # _____ | Trauma # _____ | Page 2

SECTION III PROCESS OF ACUTE CARE | Admission Status _

Date & Time Entered ED __/__/__ @ __ __
Trauma Team Activation Time __ __
Members Late/Absent from Activation __ __ __

ED Interventions __, __ __ __, __, __, __, __, __, __
Other _____

Date & Time Departed ED __/__/__ @ __ __
Location of Initial CT Scan _ Date & Time __/__/__ @ __ __

Rehabilitation Consult _ __/__ __
Nutrition Addressed _ __ __ __
Substance Counseling _ __ __ __

Post ED Destination __
Other _____
Admitting Service _

Was patient previously admitted to hospital for this injury? _
If yes Previous Trauma Registry Number _____

ACS / JCAHO Filter Questions

Was there at least hourly determination and recording of blood pressure, pulse, respiration and GCS for any trauma patient beginning with EDA including time spent in radiology, up to admission to the ward OR or ICU transfer to another hospital, or death? _

Did patient with epidural or subdural brain hematoma receive a craniotomy > 4 hours after EDA excluding those performed for ICP monitoring? _

Did comatose patient (GCS < 9) leave ED before definitive airway (endotracheal tube/surgical airway) was established? _

Did patient require reintubation of airway within 48 hours of extubation? _

Did patient w/ abdominal injuries & hypotension (SBP < 90) not undergo a laparotomy within 1 hour of ED arrival? _

Did patient undergo laparotomy > 4 hours after ED arrival? _

Was there a nonfixation of femoral diaphyseal fracture? _

Was patient sustaining a gunshot wound to abdomen managed non-operatively? _

Was there an interval of > 8 hours between arrival and the initiation of debridement of an open tibial fracture, excluding a low velocity gunshot wound? _

Was abdominal, thoracic, vascular, or cranial surgery performed > 24 hours after arrival? _

HIV Positive _

ATTENDING PHYSICIANS AND NURSES

	Call	Arrive
Attending Trauma MD _____	__ __	__ __
Neurosurgeon _____	__ __	__ __
Cardiovascular Surgeon _____	__ __	__ __

ED MD _____
Anes MD _____
CRNA _____
ED Charge RN _____
ED Recorder RN _____
ED EMTP _____
Chief Tr Surg _____
Sr Resident MD _____
Jr Resident MD _____

Service MD _____
Ortho MD _____
Plastics MD _____
Cardiac MD _____
Thoracic MD _____
Rehab MD _____
Other MDs _____

OPERATIONS / PROCEDURES Number of Operations _

	Date	Time	Procedure 1	Procedure 2	Procedure 3	Procedure 4	Procedure 5
Operation 1	__/__/__	__ __	_____	_____	_____	_____	_____
Operation 2	__/__/__	__ __	_____	_____	_____	_____	_____
Operation 3	__/__/__	__ __	_____	_____	_____	_____	_____

SECTION IV CLINICAL DATA

	Scene	Admission	Pre-op/Prior ED Discharge
Time Recorded	__ __	__ __	__ __
Temperature			
Were paralytic agents in effect?	_	_	_
Intubated, Method of Intubation	_ _	_ _	_
Bagging or Ventilator	_	_	_
Pulse Rate/min	___	___	___
Unassisted Respiratory Rate/min	___	___	___
Systolic Blood Pressure	___	___	___
GCS (Eye Verbal Motor Total)	_ _ _	_, _, _	_, _ _
Pediatric Trauma Score	__	___	
ETOH/BAC		__, __, __ __, __, __	
Drug Screen		_____	
If Other			

GCS = __ RTS = __ (Scene)
GCS = ___ RTS = ___ (Admission)
GCS = ___ RTS = ___ (Pre-op/Prior ED Discharge)

Incident On # 2889x | Medical Record # _____ | Patient Account # _____ | Trauma # 20020 | Page 2

SECTION V OUTCOME DATA | Discharge Status _ | Died in OR _ | Total Days in ICU ___ | Acute Care Hospital ___

Discharge to __ If Other _____ If Transferred
Hospital _____
Date and Time of Discharge or Death __/__ __ __ __ City _____ State __
Reason _____

Disabilities	Feeding	Locomotion	Expression	FIM Score
Pre-existing	_	_	_	__
At Discharge	_	_	_	__

Impediments to Discharge _ _ _ _

GCS at Discharge Eye Opening _ Verbal Response _ Motor Response _ Total GCS __

Pre-Existing Conditions ____ ____ ____, ____, ____

Complications __, __, __, __, __, __ __ 1993 ACS Complics ____, ____ ____, ____, ____, ____, ____, ____, ____ ____

Sources of Final Anatomical Diagnosis
Autopsy _ Surgery _ Radiographic Study _ Clinical _ Organs Donated __ __, __ __ Medical Examiner # _____
Location of Death __ Manner of Death __ Cause of Death _____

Hospital Charges
Billed $_____ Collected $_____ Date __/__/__ Payor Sources __ __, __, __ Other _____

SECTION VI ANATOMICAL DIAGNOSES

AIS Version 90 ISS = 13 TRISS = _____ RTS on Admission = ____
Percent TBSA 2nd/3rd degree burned ___ Burn Score _____

	ICD-9	AIS	PRE DOT	INJURIES
1)	808.0	35	852604	fx acetabulum, comminuted
2)	867.0	24	545099	urethral injury
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				
15)				
16)				
17)				
18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				

Pre-Hospital Memo
(None)

ED Memo
(None)

Nursing Memo
(None)

In-hospital Memo

Autopsy Memo
(None)

Follow-Up Memo
(None)

System Memo
(None)

QA Discussion Memo
(None)

附錄四

TRAUMA TEAM ACTIVATION (TRAUMA CODE)

1 Doctors in the Trauma Team (excluding A&E) will carry trauma pagers These are alpha-numeric pagers which will ring simultaneously when the team is paged There is no necessity to reply (unless one is unable to respond) and the team should proceed immediately to A&E Resuscitation Room when requested to do so

2 The trauma pager is to be passed by hand from one doctor to the next doctor on-call This will ensure that there is someone contactable at all times A test page will be sent out by the SGH operator every morning at 9am and a reply is necessary to ensure that all pagers are in working order The pagers remain the responsibility of the department concerned If any pager is lost/damaged or if the trauma team member fails to respond to the test page, this should be reported to the Trauma Director

3 In addition, the anaesthetist and radiologist-on-call will also hold a trauma pager This is to enable them to anticipate the arrival of the patient They will need to respond to the test page in the morning but do not need to attend the trauma resuscitation unless specifically called upon

4 Each trauma pager will have, in addition to an individual number, a common activation number which is confidential (known only by the SGH telephone operator and the A&E) This common activation number will be used to allow group paging The individual numbers for the team members are as follows

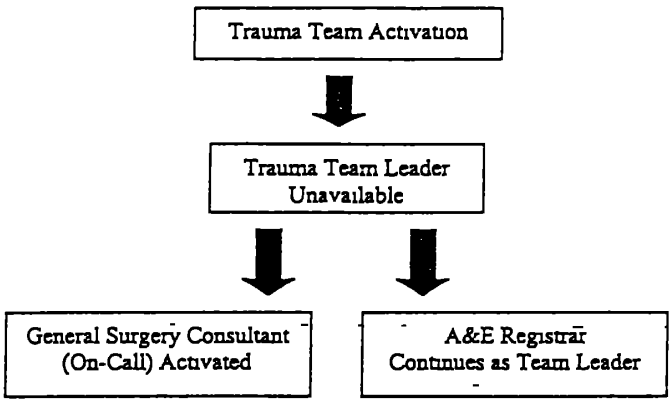
Trauma Team Leader (General Surgery)	9561 6001
General Surgery MO	9561 6002
Orthopedic MO	9561 6003
Anaesthetist-on-call	9561 6004
Radiologist-on-call	9561 6005

5 The activation of the trauma team will be based on agreed activation criteria (Annex I) The decision for activation will rest on the senior A&E doctor (Consultant/ Senior Registrar/ Registrar) The message will be transmitted via the SGH operator (Telephone number 4001 or 4002)

6 All patients who satisfy the activation criteria will be seen by the Trauma Team and admitted under the Trauma Service

7 If the Trauma Team Leader decides that the team has been inappropriately activated he can call off the trauma code However, he must first assess the patient himself

8 In the event that the Trauma Team Leader is not available, a backup system is needed This is outlined in the chart below The A&E Registrar continues as the Team Leader until the arrival of the General Surgery Consultant (on-call)



9 All trauma activations will be audited and reviewed by the Trauma Service

10 Using the new activation criteria, it is expected that Trauma Team activation will increase A balance needs to be reached as overtriage wastes resources and undertriage results in increased preventable deaths

附錄五

ANNEX I - Trauma Team Activation Criteria

1 The objective of the activation of a trauma team is to provide an immediate, organized, multidisciplinary response to the multiply injured patient who requires resuscitation, urgent evaluation or early surgery

2 The trauma team will be activated by the Senior A&E doctor on duty (ie A&E Consultant/SR/Registrar on duty) In their absence, the A&E medical officer at Critical Care/Resuscitation will initiate the activation in accordance to the triage criteria presented below

3 Triage criteria for Trauma Team Activation

a Physiological Criteria
- i) Airway obstruction or potential for compromise
- ii) Breathing abnormalities ie RR < 10/min, >30/min
- iii) Shock ie Systolic BP < 90 mmHg
- iv) GCS <15 (if not due to isolated head injury)

b Anatomical Criteria
- i) Penetrating injury to Head, Neck, or Torso
- ii) # pelvis (excluding isolated # NOF in the elderly)
- iii) 2 or more proximal long bone #s
- iv) Burns > 20% BSA with primary, secondary (missiles) or tertiary (impact) injuries

c Mechanism of Injury Criteria
- i) High velocity/major transfer of forces (e g falls from heights > ~~2 m~~ 6m (20 ft))
- ii) Prolonged entrapment/extrication

d Premorbid Criteria
- i) Coagulopathy

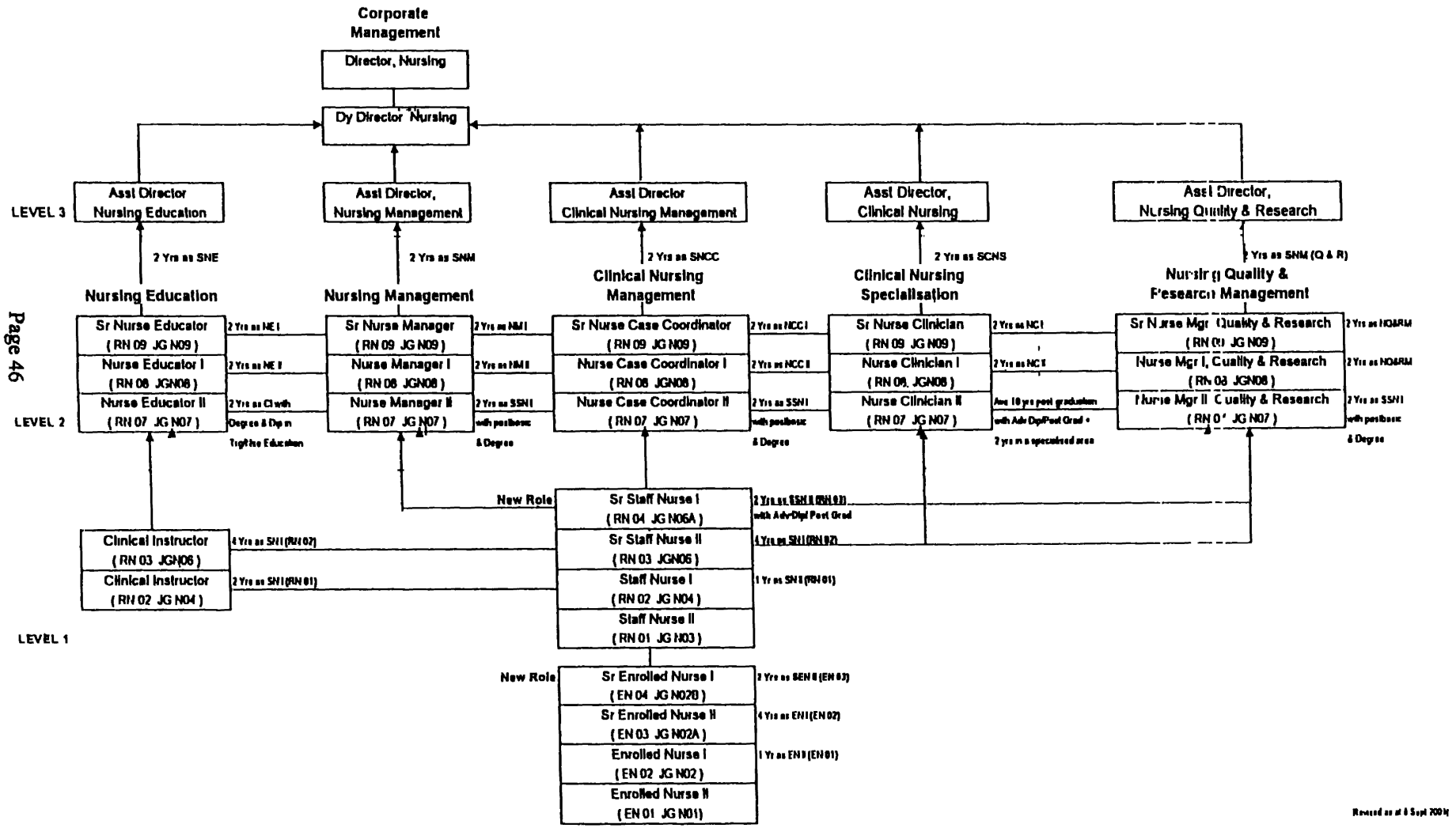
4 Trauma team activation must be initiated upon receipt of prehospital information that fulfills the above triage criteria before the arrival of the patient at the A&E

5 All cases that does not fulfill the triage criteria but require early surgical evaluation will be referred to the General Surgical SR/Reg on call as in current practice

6 If there is any doubt in the immediate evaluation, resuscitation and management of any trauma patient, the trauma team can be activated

Approved by Head Accident & Emergency December 1997

CAREER PATHS FOR NURSES



Revised as at 6 Sept 2004

TRAUMA ACTIVATION RECORD

Activation Criteria ☐Physiologic ☐Anatomy ☐Mechanism

☐Others _____

Patient Identification

TTL._____ MCR _____

HISTORY

Allergies No/ Yes

Pas. Medical History

Medication

Injury Date/Time

Description

TRAUMA REHABILITATION

1 A comprehensive rehabilitation program is essential to any trauma program. The aim is to return the trauma patient to, as close as possible, his/her pre-injury state. This is especially important as many of them are young and there is a potential loss of many years of productive life.

2 The rehabilitation process should start once the patient is stablised. This can be divided into the early and the late phase.

3 The early rehabilitation phase focuses mainly on the respiratory and cardiovascular system. This will involve mainly the physiotherapist.

4 Once the acute phase is over, the focus shifts to mobilisation. This refers especially to head injury and orthopedic patients. Limb therapy programs as well as special programs designed for coma or spinal cord patients are required.

5 The late phase of rehabilitation begins at hospital discharge. This is presently based at the Rehabilitation Unit at Tan Tock Seng Hospital. For patients who do not require this level of expertise, they can be transferred to community hospitals (Ang Mo Kio Community Hospital) for further recuperation.

6 In addition to the physical aspect of the injury, the patient should also receive psychological and social rehabilitation. The behavioral and psychological disturbances may result either from premorbid pathology, injuries or the result of treatments given. Psychological and psychiatric assessment may be required. In addtion, they may require assistance with financial problems, family, claims and vocational re-training.

QUALITY ASSURANCE

1 Quality Assurance is essential as it helps to continually improve the system of trauma care. The aim would be to monitor both success and shortcomings and not to 'point fingers' at individuals or department.

2 This will take the form of monthly trauma M&M meetings whereby selected cases are discussed by a multi-disciplinary panel of doctors. Judgements regarding mortality will be classified as preventable, potentially preventable and non-preventable.

3 Some of these cases may be chosen for the monthly multi-disciplinary Trauma Conferences which will serve to highlight or update certain aspects of trauma care.

4 Audit filters will be used to examine the process of care and identify potential patient care problems for discussion. Audit filters include defined deficiencies in care, complications and death. A list of recommended audit filters is available in the 'Resources for the Optimal Care of the Injured Patient 1993' published by the American College of Surgeons. These are also available in commercially available trauma registry software.

5 Focussed audits will be done periodically to examine the process of care.

6 Outcome reviews are possible using probability of survival data and identifies patients for in-depth review. In addition, external comparison is possible with the National Trauma Database (US).

7 Following identification of specific problems in patient care or system performance, corrective action is necessary. This in turn should be re-evaluated by a concurrent audit process to determine the effectiveness of the corrective action.

8 Protocols for managing various aspects of the multiply injured patient will be developed. Radiology protocols have already been drawn up (Annex VI).

TRAUMA MANAGEMENT PROTOCOL

1 All patients seen and assessed by the Trauma Team will be admitted under the Trauma Service for the first 24-48 hours

2 This is to allow all problems or potential problems to be sorted out prior to transfer to the the next most appropriate discipline The decision for transfer will be decided by the Trauma Director

3 In Phase 1, the trauma patient will be admitted either to SICU or Surgical HD (Ward 57 or 58) When the Trauma HD is ready, patients requiring high dependency will be admitted there

4 The trauma patient will be under the care of the General Surgical team on-call on the day of admission The following day, the patient will come under the care of the Trauma Service

5 Patients with burns will be admitted to the Burns Centre

6 Pediatric trauma patients should ideally be managed at the KK Women and Children's Hospital In the event that they are brought to SGH, they will be resuscitated and then transferred out. Details of responsibility is currently being worked out.

TRAUMA REGISTRY

1 Data on all multiply injured patients seen by the Trauma Team will be prospectively collected on newly designed forms. The nursing form will be filled out by Nurse 1 and the doctors form will be filled out by the A&E MO The Trauma Team Leader will summarise the management plan on the doctors form

2 These forms (together with photocopies of the ambulance run-sheet and other documentation) will be collected the next day and the data entered into a Trauma Registry form The patient's case-notes will be reviewed on discharge and at 3 months and the Trauma Registry forms updated These data will subsequently be entered into the computer In the case of death, the postmortem report will need to be acquired

3 The Trauma Registry will capture information on demographics, injuries (including classification and severity scoring), medical assessment and interventions and autopsy findings

4 Various trauma registry software are commercially available (Annex V) We recommend TRAUMA ONE as it is Windows-based and has the best features The trauma registry programs not only records the data but is able to do statistical calculations of probability of survival and assist in trauma audit and reports

5 The Trauma Coordinator is responsible for maintaining the Trauma Registry Training courses are available in the United States

6 When a National Trauma Registry is set up, the hospital's Trauma Registry should be linked to it so that nationwide data can be collated.

TRAUMA REGISTRY REPORT REQUEST

REQUESTER FROM

APPOINTMENT DATE

CONTACT NUMBER RE

PURPOSE FOR REQUEST

☐ URGENT ☐ WITHIN THIS WEEK ☐ WITHIN_____ DAYS ☐ WHENREADY

DETAILS OF REQUEST

1 _____
2 _____
3 _____
4 _____
5 _____

NO OF REPORT DATE RECEIVED

Report Attached

Patients included Admitted from __/__/____ - __/__/____

1 _____
2 _____
3 _____
4 ___ _____
5 _____
6 _____ _____
7 _____
8 _____
9 _____

TRAUMA SERVICE
BLK 5 LEVEL 7 ROOM A6
TEL (65) 3266877
FAX (65) 2209323

Major Trauma Data Form
TTSH – NNI Trauma (TNT) Center
Emergency Department Data Collection Form

Place patient's sticker here
Name _____
NRIC _____
Date of registration_____

Admission Criteria to TNT
- ISS (estimated) of 8 and above
- All ED trauma-related deaths
- all trauma patients admitted to HD or ICU (including requests for HD bed)
- all trauma patients sent directly to OT from ED
- patients with moderate trauma (AIS 2) to 2 or more body systems or severe trauma (AIS 3) to any body system
- all trauma cases transferred to TNT from external source

Demographics

Ethnic Group _____ Nationality _____

Incident Data

Date of injury ☐☐/☐☐/☐☐ (dd/mm/yy) Time of injury ☐☐ ☐☐ (hh mm)

Type of injury ☐blunt ☐penetrating ☐burn ☐cold ☐Others _____

Mechanism of injury
☐assault ☐burns ☐electrocution, lightning strike ☐fall ☐falling object ☐sports ☐vehicular accident ☐other__

Location (site) of incident (select ONE most appropriate)
☐home ☐public area ☐street/road ☐school ☐work ☐other _____

Vehicular Accident: Type of vehicle
☐car ☐bus ☐van ☐lorry/truck ☐motorcycle, scooter ☐bicycle ☐airplane ☐train ☐boat ☐other_____

Vehicular Accident: Type of collision
☐NA ☐motor vehicle (mv) vs mv ☐mv vs motorcycle ☐mv vs bicycle ☐mv vs pedestrian ☐single vehicle

Vehicular Accident: Position in vehicle (select ONE most appropriate)
☐NA ☐driver, pilot ☐front passenger ☐rear passenger ☐motorcyclist ☐pillion rider ☐pedestrain ☐other ___

Vehicular Accident: Type of impact (select ALL appropriate)
☐NA ☐head on ☐rear end ☐side ☐roll over ☐ejection

Vehicular Accident: Restraining devices (select ALL appropriate)
☐NA ☐none ☐seat belt ☐helmet ☐air bags ☐other _____

Vehicular Accident: Difficult extrication ☐yes ☐no

Fall
Height ☐< 2m ☐> 2m
Landing surface ☐NA ☐concrete, road ☐grass ☐soil ☐water ☐other _____

Interpersonal violence (select most appropriate)
☐NA ☐ slap, punch, kick ☐blunt instrument ☐sharp instrument ☐firearms ☐explosion ☐other_____

Deliberate self harm
☐blunt ☐stab ☐bullet ☐fall ☐laceration ☐hanging ☐other_____

Pre-hospital Data

Availability of Data Yes/No

Mode of arrival (select ONE most appropriate)
☐SCDF ambulance ☐other/private ambulance ☐private vehicle ☐air

Transfer in
☐No ☐AH ☐CGH ☐KKH ☐NUH ☐SGH ☐WH ☐Malaysia ☐Indonesia ☐other _____

Ambulance data
Time call for assistance/EMS ☐☐ ☐☐
Time of dispatch/run begins ☐☐ ☐☐
Time vehicle arrives at scene ☐☐ ☐☐
Time arrival at patient ☐☐ ☐☐
Time vehicle departs from scene ☐☐ ☐☐

Pre-hospital Crew Leader (select ONE most appropriate)
☐NA ☐SCDF paramedic ☐nurse trained in trauma care ☐nurse not trained in trauma care

Major Trauma Data Form

☐doctor trained in trauma care ☐doctor not trained in trauma care ☐untrained person ☐others

Pre-hosp 1st parameters GCS E☐ M☐ V☐ RR ☐☐ HR ☐☐☐ BP ☐☐☐/☐☐☐ SaO2☐☐☐

Pre-hospital procedures (select ALL appropriate)

☐O2 ☐cannulation ☐cervical collar ☐spine board ☐oral airway ☐ETT ☐CPR ☐chest tube ☐others

ED Data

Time at ED☐☐ ☐☐ Time attended☐☐ ☐☐

Standby case ☐yes ☐no

Resuscitation room ☐yes ☐no

ED 1st parameters GCS E__M__ V__ RR ☐☐ SBP ☐☐☐ HR ☐☐☐ SaO2☐☐☐

Trauma Team (do not count MO/residents, include only specialists who assessed patient in the ED)

Time Called	Time Answered	Time Arrived	Grade of Personnel	Department

ED Event and Date, Time-points, Time intervals (select ALL that apply, fill in the blanks where appropriate)

☐cardiac arrest ☐on arrival ☐☐ ☐☐ after arrival in ED

☐respiratory arrest ☐on arrival ☐☐ ☐☐ after arrival in ED

☐intubation ☐☐ ☐☐ time laryngoscopy begins

☐LMA ☐surgical airway jet ventilation ☐cricothyrotomy ☐e-tracheostomy ☐☐ ☐☐ time cleaning starts

☐CVP, central line

☐oro, nasogastric tube

☐chest tube ☐right ☐left

☐pericardiocentesis ☐☐ ☐☐ time cleaning starts

☐open thoracotomy ☐☐ ☐☐ time cleaning starts

☐DPL ☐☐ ☐☐ time cleaning starts

☐abdominal ultrasound ☐☐ ☐☐ time probe contacts patient

☐pelvic C-clamp ☐☐ ☐☐ time cleaning starts

☐X-rays ☐☐ ☐☐ time 1st cassette is placed under patient

☐R upp limb splint ☐L upp limb splint ☐R lower limb splint ☐L lower limb splint

Number of IV lines ☐

Amount of IV crystalloid completed in ED (to nearest 0 5L) _____ L

Amount of colloid completed in ED (to nearest 0 5L) _____ L

Amount of blood completed in ED (to nearest 0 5L) _____ L

Other procedure _____

ED Outcome Details (pick ALL that apply)

CT from ED Yes/No Time of CT ☐☐ ☐☐

Outcome Dead/Alive time of death☐☐ ☐☐

Destination from ED ☐NS HD ☐NS ICU ☐GS HD ☐GS ICU ☐gen ward ☐OT

AOR Yes/No

Time left ED ☐☐ ☐☐ Time arrive at destination ☐☐ ☐☐

Comments _____

Surgery Yes/No

Type of Surgery

Date	Start Time	End Time	Surgery Type	Grade of Anesthetist	Grade of Surgeon

Complications (Mark all that are present)

Pneumonia / PE / Fat Embolism / ARDS / DIC / Renal Failure / Multiorgan Failure / Sepsis / Pressure Sores
Wound Infection / Urinary Tract Infection / MRSA / Myocardial Infarct
Others _____

Pre-morbid Conditions (Mark all that are present)

Cardiovascular / Respiratory / CNS / IDDM / Renal / Liver / GIT / Musculoskeletal / Immunosuppressive
Others _____

Transfusions

Blood Product	Pre-op (1st Surgery)	Day 1	Day 2	Day 3	Total

Outcome

Transferred out Yes/No
Date of Transfer _____
Transfer Hospital _____

Days in ICU _____
Days in HD _____
Total Inpatient Days _____

Outcome Alive/Dead
Date of Discharge _____
Date of Death _____
Time of Death _____
Post-Mortem Yes/No

Rehabilitation

Date First Seen by Rehab _____
Transfer Rehab Facility Yes/No
Date of Transfer to Rehab Facility _____
Date of Discharge from Rehab Facility _____
Total Rehab Facility Days _____

Injuries

Injury Description	Source of Diagnosis

Comments