Hospital response in terrorist attacks / riots

Lessons learnt from London bombings
Hospital response in terrorist attacks/ riots

- Lessons learnt in the London bombings
- Lessons learnt in other terrorist attacks
- The local context: Planning for the WTO MC6 December 2005
London Bombings

- IRA first attacked London in 1867
- Peaked 1969 - 2000
- 1972: 1,500 bombing incidents
  5,005 casualties

Terrorism and the medical response. Jim Ryan NEJM 2005: 353(6) 543-545
7 July 2005
London Bombings

- **8:50 am**
  - 3 bombs within 50 sec of each other
    - on 3 London underground trains

- **9:47 am**
  - 4th bomb on bus in Tavistock Square
Locations of bombings
London Bombings
Bombs aiming to cause maximum damage

- X-ray picture showing an unexploded bomb packed with nails found in a car near Luton railway station.
7 July 2005 London

- 700 injured
- 56 killed (most died at scene)
- Deadliest bombing in London since WWII
- Deadliest single act of terrorism in UK since 1988 bombing of Pan Am Flight 103 (230 killed)

Terrorism and the medical response. Jim Ryan NEJM 2005: 353(6) 543-545
7 July 2005

1st day of 31st G8 summit hosted by UK
Riots during G8 Summit 2005
7 July 2005

- 1st day of 31st G8 summit hosted by UK
- 1 day after London was chosen to host 2012 Olympics
- 5 days after Live 8 concert
Major receiving hospitals

- Royal London Hospital 218
- University College Hospital over 60
- Royal Free Hospitals over 60
- St. Mary’s Hospital 38

- Others (Great Ormond St Hospital for Children, Whittington Hospital, Guy’s & St Thomas’, Chelsea and Westminster Health Care...Moorfields Eye Hospital)
Lessons Learnt

- **Patients load**
  - Overloading of nearest hospitals
  - Patients arrived in other means of transport (e.g. buses)
  - Some patients were not sent to the most appropriate hospitals

- **Inpatient bed capacity**
  - (1,200 beds made available across London)

- Injuries treated in locations close to scene (e.g. Marks and Spencer Store and a Hotel)
Lessons Learnt

- **Breakdown in communications**
  - telephone lines failed
  - hospitals loaded with enquires from relatives and embassies
    - no communication between medical teams and hospitals
    - no communication between and within hospitals

- **CMO criticized delay by police in setting up emergency help lines:**
  - “The emergency phone lines for the public came up relatively late in the day; it is not the NHS’s responsibility to do that.”
Doctors from BMA acted as medical team

“Most of my colleagues have not cared for a casualty in 20 years...... Armed with noting, we set about maximising the victims’ chances of survival.”

Improvising in an Emergency. Peter JPH. NEJM; 353(6): 541-543
Traffic Gridlock
Lessons Learnt

- Traffic gridlock
  - difficult for rescue staff to reach and leave scene
  - use of unconventional means to transfer medical teams to crowded areas: helicopters
  - assistance offered by “passerby” doctors with little equipment and support
Medical team from Royal London Hospital’s Helicopter Emergency Service
Medical team from Royal London Hospital’s Helicopter Emergency Service
Overloaded transport
Prompt response by top leaders
Lessons “learnt” are learnt over and over again in disaster after disaster

- Casualties will be transported to hospitals appropriate for their needs and in such a manner that no hospital receives a disproportionate number

- Research observation: Most casualties are transported to the closest or most familiar hospitals

Lessons “learnt” are learnt over and over again in disaster after disaster

- Trained EMS personnel will carry out triage, provide first aid or stabilizing medical care and if necessary decontaminate casualties before patient transport

- Research observation: Casualties are likely to bypass on-site triage, first aid, and decontamination stations and go directly to hospitals
  - “reverse-triage”
Chemical Terrorism In Japan: The Tokyo Incident

- The largest disaster caused by nerve gas in peacetime
- 5000-6000 exposed
- 3227 presented to hospitals (mostly mild symptoms)
- 493 admitted (41 hospitals) most discharged within 24 hours, 17 required ICU care
- 12 deaths: 9 at site of exposure, 1 on hospital arrival, 2 delayed deaths due to hypoxic brain damage

Sarin Attack – Tokyo, Japan

- EMS personnel
  - 135 symptomatic
  - 33 hospitalized
- Police and hospital workers also symptomatic
- Many exposed patients self-presented to hospitals
- Accurate detection of sarin made 3 hrs after incident
911

- World Trade Center
  - Towers 2,595
  - Flight 11 92
  - Flight 175 65
- Pentagon
  - Building 125
  - Flight 77 64
- Shanksville
  - Flight 93 45

- Total 2,986
The World Trade Center Attack
Lessons for Disaster Management

- New York City:
  - 1.5 million in Manhattan Island
  - 6 Trauma centers
  - Fire Department of NY controlled largest no of ambulances
  - Coordination of ambulance services through the Office of Emergency management (OEM)
  - The HQ of OEM in 7 World Trade Center, and communication center was in 1 World Trade Center (North Tower)
Reduced to Rubble

Two Boeing 767s on hijacked flights from Boston crashed into the twin 1,350-foot towers of the World Trade Center in Manhattan, reducing them to rubble within hours.

1. At 8:45 a.m., American Airlines Flight 11 crashes into North Tower.

2. At 9:03 a.m., United Airlines Flight 175 crashes into South Tower.

3. At 9:59 a.m., Burning aircraft fuel softens or melts the support structures of the South Tower—located on the perimeter and in the core—above the point of impact. The weight of the structure above comes crashing down, taking the rest of the tower with it.

4. At 10:03 a.m., The North Tower collapses the same way.

SOURCES: Port Authority of New York and New Jersey; Staff and news reports

GRAPHIC BY CHRISS KIRKMAN, RICHARD FURINO AND SETH HAMBLIN — THE WASHINGTON POST
Lessons learnt in WTC attack

“In the first 2 hours, over 350 patients walked or were taken to New York University Downtown Hospital, a non trauma center 0.32km from the WTC. St Vincent’s Hospital is 1.6 km from the scene. As the closest trauma center, it was quickly swamped with over 300 walking wounded and critical patients. Bellevue Hospital, a trauma centre approximately 4.0km north east of the WTC, also received some of the early injured patients both directly and in transfer....
Lessons learnt in WTC attack

- Communication between most hospitals and coordinators at the scene was almost non-existent. Telephone communication either via landline or cell phone did not exist in lower Manhattan. Triage from scene...did not occur...Non-FDNY ambulances took patients to the nearest hospital without any knowledge of available resources. Physicians, nurses, and ancillary professionals at St Lukes-Roosevelt Hospital, a trauma center only 4.8 km North, sat idle and frustrated, while staff at St Vincent and New York University Down Town hospital worked under extreme conditions.”
Lessons learnt in WTC attack

- Breakdown of communications and lack of coordination
- Reverse-triage
- Overloading of nearest hospital
- Patients not being sent to most appropriate hospitals
- Hospital need to stage rapid response within
  - 3 hours: 20 ICU beds, all elective surgery halted, 6 Operation room spared
  - 4 hours: 100 critical and acute beds
Conference period  13–18 Dec 2005
Alert period  10–20 Dec 2005

No. of Participants  Around 11,000 – 12,000
Event venue  HK Convention & Exhibition Centre
WTO MC3 Seattle, 1999
WTO MC5 Cancun, Mexico 2005

- Death of Lee Kyung-hae
韓式暴力襲港 19-11-2005

【東方日報專訊】亞太經合組織第十三次領導人非正式會議，昨日在釜山舉行，場外發生激烈抗議行動，一萬二千名南韓示威者在會場外集會及抗議，其中四千人遊行至會場附近時，部分人以石塊、竹枝及雜物襲擊警員，又放火燒車，南韓防暴警察以大規模貨櫃陣及水炮對付示威者，示威者更一度用繩索拉倒貨櫃，雙方爆發多次暴力衝突，多名警察及示威者受傷，一名示威者昏迷。部分參與者更揚言下月會來港抗議世貿部長級會議，昨日釜山的激烈抗爭場面，下月隨時會在灣仔街頭上演。
Guide in planning

- Led by Government
- Central Coordination
- Planning for “worst case scenario”
- Multi-agency approach
  - Prevention
  - Preparedness
  - Response
  - Recovery
- Drills and exercise
WTO MC6

- **Risk Assessment (almost 100%)**
- **Public order threat**
  - Police estimation:
    - 10,000 overseas protesters
    - 3,000 – 4,000 local protesters
  - Planned rallies, at least 3
  - Possible targets: symbols of Globalization capitalism
Reasons for protest

- Those with genuine trade interest
  - Agriculture / Non-agricultural Services
- Poverty relief organization
- Environmental protectionists
- Foreign domestic workers
- Anti-globalisation activists
Targets of Anti-Globalisation Forces

Symbols of Globalisation Capitalism
Damage and Vandalism
WTO MC6

- **Risk Assessment (almost 100%)**
- **Public order threat**
  - Police estimation:
    - 10,000 overseas protesters
    - 3,000 – 4,000 local protesters
  - Planned rallies, at least 3
  - Possible targets: symbols of Globalization capitalism
- **Traffic Interruption**
WTO MC6

- Risk Assessment
- Terrorist threat
  - High profile international conference
  - Ministers from over 147 members
  - Threat of assassination
  - Threat of terrorist attack
  - Threat of CBRN attack
- Criminal Exploitation
HA’s preparation for WTO MC6

- A team member of Government’s overall response
- Anticipatory approach
  - Capacity building
  - Strategic pre-deployment of resources
  - Rapid mobilization of resource
- Multidisciplinary participation
Capacity Building

- Planned augmentation of manpower
- Leave restriction in key services in designated hospitals
- Planned reduction of non-essential/non-urgent services in key hospitals
- Augmentation of stocks in consumables/drugs/blood
Contingency plans for receiving sudden influx of patients

- Diversion plan: pre-set patient quotas (subject to traffic conditions)
- Involvement of closest hospitals and hospitals further away in turns
- Defining receiving hospitals for patients transported by ambulances, helicopters, buses and boats
- Temporary casualty receiving areas in hospitals
Contingency plans for receiving sudden influx of patients

- Plans for increasing bed capacities within 2 hours
  - At least 80/40 extra beds (large/small hospital)
- Plans for increasing OT capacity within few hours
  - At least extra 4/2 OTs (large/ small hospital)
- Designation of 6 General outpatient clinics in managing walking wounded if necessary
- Rapid staff mobilization plans: within hospital, intra and inter cluster
Contingency plans for mission critical systems

- IT
- Telecommunications
  - fall back telephone, trunk radios
- Other supporting services
- Staff quarters
- Hospital transport for staff, patients and consumables
- Augmentation of security
- Interpreters (staff volunteers, supplementary sources), pre-translated document (14 languages)
Recovery Plans

- Swift recovery of normal hospital services
- Help Desks for patients and relatives
  - Police to handle public enquiry of casualties/ deaths
  - Home Affairs Department to coordinate hospital help desks to provide assistance to patients and relatives
    - Hospital Authority to provide casualty lists
      - Mindful of personal data privacy
    - Other members: Social Welfare Department
- Psychological care to patients and staff
Anticipatory deployment of medical teams
Deployment of Medical Teams: Anticipatory approach

- Pre-deployment
  - Auxiliary medical Services (AMS) / HA Medical Team at HKCEC
  - At strategic sites (police intelligence)
    - AMS: First aid
    - HA: mobile medical team for medical emergencies

- Emergency deployment of HA medical team to site of disaster (ambulance/helicopter)
Getting prepared

- **Training sessions**
  - Medical management
  - CBRN
- **Drills**
- **Briefings**
  - Internal: Board members, all acute hospitals involved in preparing for the event, specialty coordinating committees, staff consultative groups, open forums (44 by HAHO)
  - External: District Council, press
Briefings to Media

- Apple Daily 2005-11-17港聞
- 騰出空間處理示威傷者 世貿期間醫院服務減半
- 【本報訊】世貿部長級會議臨近，醫管局配合政府的整體應變部署，制訂了一套應變計劃，所有設有急症室的公立醫院和相關專科部門都要作好準備，下月十日至二十日主要醫院的醫護人員除結婚等特殊情況外，將要取消休假候命。醫管局消息透露，屆時主要收症的重點醫院將是瑪麗、東區尤德、律敦治、伊利沙伯、聯合及廣華。
- 會議期間，有關醫院要減少約五成非緊急手術及非緊急入院服務，所有醫護除了結婚理由外，不得放假，連培訓或出外講學也要取消。消息解釋，屆時除急症入院個案，如盲腸、心臟病、中風、意外創傷或緊急癌症手術等外，其他預約入院檢查，如照大腸鏡等非緊急服務都要減一半之多，尤其要減少那些手術後要使用深切治療部的非急性的大型手術，以盡量騰空深切治療部，應付嚴重傷者。
- 每間大醫院都要預留至少相等於兩至三間病房的病床，並在可能情況下把示威衝突的傷者與非示威傷者分隔。消息表示，屆時即使已入院的急症個案，也要盡早安排出院；現時已開始通知在會議期間入院的病人，另安排入院日期。
世界貿易組織會議即將舉行，為了解決議議題和相關的最新資訊，我們已在內網ha home中設置義大利網，以期能夠反時迅速地發放有關資訊。新增欄目如下：

The World Trade Organization Ministerial Conference 6 (WTO MC6) is just about to be held. For the sake of releasing the most up-to-date information to our front line colleagues in an efficient means, a specific WTO website has been created and launched on the HA Intranet ha home, with the features as below:

- 醫管局的使命
- 醫管局的使命
- 設備
- 設備
- 醫療指引
- 業務熱線
- 臨床心理支援
- 與世貿有關的《義大利網》
- 携票示範本

網站亦會不時更新網頁內容，以求讓大家儘快獲取相關資訊，希望大家密切留意。

We will build up and renew the contents as we go along to let you all know any relevant information as soon as possible. Thank you for your browsing too!
Control and coordination

HAHO MICC

HOSPITAL / CLUSTER MICC

- Monitoring and coordinating response of all WTO-related casualties in public hospitals

MICC = Major Incident Control Centre
Coordination by HA Head Office

- Clinical response
- Human resources deployment
- Business support
- IT
- Press release/ enquiries
- Work as part of Government response
17 December 2005
13 – 18 December 2005

- Treated a total of 137 casualties as a result of riots (92 by RH)
- Treated a total of 131 due to riot on 17.12.2005 (92 by RH)
- Most injuries were minor
- 6 patients required admission
  - 1 Hypothermia after jumping into sea
  - 1 GI bleeding
  - 1 Surgical emphysema in neck
  - 1 fractured tibia (pedestrian)
  - 1 fractured big toe (police)
HA Mobile Medical Team in action
High spirited health care team at RH
世貿期間醫護廢寢忘餐救人

【本報訊】連串反世貿遊行示威，造成最少一百三十七人受傷。一批在世貿會議期間負責醫治受傷醫員及示威者的醫護人員，憑著一顆救人的心，不分晝夜，不分降霧，隨時候命醫治傷者；他們更首次感受到在飢寒交迫之下，市民送上食物默默支持的精神。

感激市民送來食物

醫管局早在一年前已與政府相關部門訂定有關世貿的應變方案，包括組織一支有近四十名醫護人員的「流動醫療隊」，在會議期間駐守灣仔祕密商場，為傷者即場治療。擔任醫療隊隊長的那打素醫院急症室科部門主管陳德興昨在記者會表示，會議期間每天至少工作十二小時，極為辛苦，但感受良多，「就算再辛苦都值得。」

陳德興說，醫療隊在示威者衝擊警方及警察的一天，即十七日下午二時駐守灣仔祕密商場，由於有示威者逾過警方防线近身會場，警方施放多枚催淚彈鎮壓。為安全計，醫護隊只好聽從警方指示，晚上八時許「撤退」至政府大球場。

「感謝在場幫忙，想買食物都買不到，真是又冷又餓。」醫療隊此際突然聞到一陣烤肉香味，隊員跟民衆尋找來源，發現一批市民在大球場附近為會場燒烤，他們看見醫療隊員又冷又餓，隨即送上熱騰騰的牛扒、魚蛋及腳仔，令全體醫護隊員紛紛感動。

此外，律敦治醫院急症科醫生司徒唯家在十七日於會場原定的巡回診斷會取消，他於十七日晚上九時半在會場外為來賓放開接診。他形容在會場外診治，隨手可及醫護人員，「實是難得。」
評估公眾評估

評估由公眾評估

【本報訊】實習記者鄧溶溶報道：世貿會議舉行期間，醫管局轄下的醫院一共處理了一百七十三名傷者，醫管局專業事務及運作總監張偉雄於感謝醫護人員樂於敬業，親身到醫院探望傷員，又指醫管局與各部門在會議期間合作順利。有醫護人員表示，執勤期間，面對的壓力比預期大，又為傷者之間發揮團隊精神而感動，亦多謝市民向醫護人員主動送上食物。另外，相信是由於警員在寒冷天氣下不避，有醫院曾經一天內，向警方提供五百至一千粒止痛藥。

除警方在世貿會議期間進行全天候部署外，醫護人員亦有增加人手，在六日的會議期間醫管局轄下的醫院一共處理了一百七十三名傷者，其中有九十二人被送往灣仔律敦治醫院。為感謝醫護人員努力，醫管局專業事務及運作總監張偉雄昨日特地到醫院探望傷員，感謝員工主動加班，又指醫管局與各部門在會議期間合作順利。

與多名護理人員分享在會議期間的經歷時，醫管局流動醫療隊隊長陳德勝指出，當時該隊有二十一位護理員在戶外執勤期間，面對各種威懾衝突，最難忘的是醫護不停處理傷者，還要間歇休息。幸好得到熱心的市民主動向醫護人員送上食物，例如，大量的餅乾、魚蛋、香腸等，令他深深感受到人間有情。

傷手病源未追到

【本報訊】近日元朗區接獲發生多宗傷手個案，衛生福利及食物局常任秘書長尤曾家聲昨日出席一活動時表示，衛生防護中心正緊密追查病源，但由於患者進食的食物種類繁多，亦會到過多處地方，有關部門目前仍未追查出原因。

對於有醫學研究指出，有兩者對抗流感染特敏福出現反應性，尤曾家聲表示，據了解，現時特敏福仍然是最有效的對抗流感染藥物，當局亦會繼續依照世衛的指引購藥。她呼籲市民不要濫用特敏福，以免最後一道防線被攻破。
Commendation by the Chief Executive HKSAR
Overall Evaluation

- Demonstration of professional patient care through teamwork

- Demonstration of inter-cluster and inter-division collaboration

- Thorough preparation had made possible prompt response to surge of casualties within a short time
The Art of War teaches us to rely
- not on the likelihood of the enemy’s not coming, but on our readiness to receive him;
- not on the chances of his not attacking, but rather on the fact we have made our position steadfast’
Special Thanks

- Dr W L CHEUNG, D(PS&O), HAHO
- Dr Jimmy Chan (AED AHNH)
- Dr Y T WONG (AED RH)
- Dr Peter PANG, Dr Lau LUM, Dr Sam LAU, Dr Kenneth LAU (AED, YCH)
End
HA Contingency Plan

- Massive casualties
- Manpower plan & surge capacity
- Define key services for all acute hospitals

- A&E
- Surgery
- Orthopaedics
- Neurosurgery
- Cardiothoracic Surgery
- Operating Theatre
- Anaesthesia
- Burns
- Intensive Care
No/ Restricted leave arrangement

- **No leave**
- Key service areas + mission critical areas + specialised areas + associated supportive areas + other areas as directed by HCE
- PYNEH, GH, RH, QMH, QEH, KWH, RCBTS, UCH, PMH

- **Others**
- Restricted leave in other acute hospitals, similar principle as above, as directed by HCEs
Injuries in Explosion

- 1️⃣ Interaction of blast shock wave (air) with body: lung, gut
- 2️⃣ Collision with energized fragment
- 3️⃣ Displacement of whole body or body parts by blast energy
- 4️⃣ Burn, smoke inhalation

Experience in Israel
- open 8% death
- confirmed 49% death
- survival have more severe injuries
WTO MC3

- 30,000 protesters
- Aim of protesters: delay the opening ceremony
- Major Paul Schell asked for national guard assistance; imposed a curfew in a 50-block downtown area
- Tear gas, pepper spray and rubber bullets were used by law enforcement officers
- 500 people were arrested and taken to jail or other designated sites
- Final count of victims treated in the Seattle area hospitals > 200 (Protestors e.g. exposure to tear gas and assaults, exhaustion, assaults)

會展模擬生化恐襲應變

【本報訊】恐怖分子發動生化攻擊，警方及消防處緊急應變。警方昨凌晨赴觀塘會展中心進行生化恐襲應變演習。演習中使用了仿真生化藥劑，分為三組：受攻擊者、救援者及檢測者。受攻擊者除頭戴防毒面罩外，身上噴有生化藥劑；救援者則以毛巾清洗場內，初步檢測後再進行消毒；檢測者則測量氣體水平。

逾百人員參與

警方、消防處及民政事務局聯同逾百名參加演習，模擬恐怖份子下毒及破壞。演習由下午二時開始，一場模擬會場發生受化學物質染毒，警方及消防處會來進行應變。警方指出，場內有噴射農藥，是要讓更多人看到場內的應變情況。
WTO MC6 Period

- Most demonstrations were held peacefully
- Only limited number of severe incidents resulting in minor cases which could be treated and discharged
- Hospital Services remained undisrupted
- Response level remained at Level 2, i.e. central command by Head Office
Rapid Response Team

- Around 300 staff signed up voluntarily for various job duties
- Centrally deployed to provide local support and cross-cluster back up
Corporate Level Emergency Support

- Rapid Response Team formed by 300 staff standby
- Translation of cue cards, consent forms and patient information into 14 languages
- Interpretation Service - staff and professional interpreters
- 24-hour News Centre
- Urgent Consumable Refill
- Urgent blood supply
- Emergency Transport
- IT 24-hour technical support
Breaking language barrier

- 40 cue cards, consent forms & information sheets translated into 12 foreign languages:
  - French
  - Tagalog (Philippine)
  - Spanish
  - Thai
  - Portuguese
  - Indonesian
  - German
  - Malaysian
  - Korean
  - Vietnamese
  - Japanese
  - Nepalese
## Diversion of Patients

<table>
<thead>
<tr>
<th>Closest hospitals</th>
<th>RH, QMH, PYNEH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Next nearest hospitals</strong></td>
<td>KWH, QEH, UCH</td>
</tr>
<tr>
<td>All other hospitals</td>
<td>PMH, CMC, YCH, TKOH, PWH, TMH, AHNH, NDH</td>
</tr>
</tbody>
</table>