

**THE SUMMER OF THE GUN:
A PERIOPERATIVE CHALLENGE**



ST. MICHAEL'S HOSPITAL
A teaching hospital affiliated with the University of Toronto

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THE TORONTO STAR

- April 11 – 3 wounded in Yonge-Dundas shooting
- May 16 – Man killed, woman injured in shooting
- May 20 – Man wounded in shooting
- July 5 – Shooting wounds 12 year old boy
- July 26 – 2nd man shot in townhouse complex
- Aug 9 – Soaring gun violence takes two more lives

Causes:

- Drugs
- Gang warfare
- Poverty
- Poor policing
- Teen boredom
- Cuts to social programs
- Cumulative effect of increasing violent society
- Heat

Fear resonated throughout the city

- Personal safety
- Economic repercussions
- City recovering from SARS
- Long hot summer

Definition of trauma:

- From the Greek
- A wound
- Damage or defeat
- Any injury, whether physically or emotionally inflicted
- Serious or critical bodily injury, wound or shock

Trauma encompasses a wide range of mechanisms of injury:

BLUNT	Motor crash, fall, assault, crush
PENETRATING	Stab, gunshot, laceration by foreign body
POISONING	Solids, liquids
DROWNING	
BURNS	Thermal, electric
BITES & STINGS	

Level I (TTC) Trauma Center

- 24/7 availability of ALL surgical subspecialties (cardiac/bypass capability)
- Neuro radiology, hemodialysis 24/7
- Organized trauma research
- Designated operating room 24/7

St. Michael's Hospital

- Located in the heart of downtown
- 600 beds
- CCU, MSICU
- Neuro/Trauma ICU – 19 beds
- 16 Main ORs & 6 Ambulatory ORs
- Helicopter pad



The Perioperative Role:

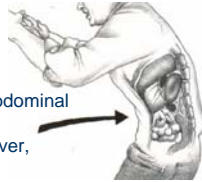
How are we organized to deal with the trauma patient?

Does it make a difference between blunt force trauma or penetrating trauma?

Does the cause of the penetrating wound make a difference?

Blunt Force Trauma:

- Motor vehicle accidents
- Fights
- Fall from a height
- Sports injuries
- Diffuse injury pattern puts ALL abdominal organs at risk
- Result in injury to solid viscera (liver, spleen)
- Rupture of hollow viscera (G.I. tract)



Penetrating Trauma:

- Stab wounds and Gun shot wounds most common causes of penetrating chest and abdominal wounds
- Stab wounds directly injure tissue as the blade passes into the body
- Visual examination of the wound can underestimate the amount of internal damage
- Any stab wound in the lower chest, pelvis, or flank is thought to have caused abdominal injury, until proven otherwise.



Gun Shot Wounds:

- Bullet wounds are unpredictable
- Make the patient more unstable
- GSW generally more serious than stab wounds
- Cause more severe lacerations and rapid blood loss due to ricochet effect
- Bullets can injure organs directly, or from secondary missiles such as bone or bullet fragments
- Bullets do not travel in straight line
- All structures in any proximity to the trajectory must be considered damaged



Incision of choice:

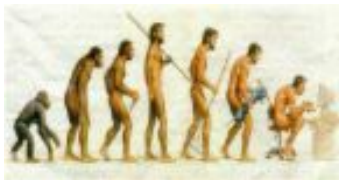
- Penetrating trauma of chest and upper abdomen
- Clam shell incision
- Allows for simultaneous access to both lungs and abdomen
- Offers rapid entry and assessment
- Used for double lung transplants
- Mediastinal tumors
- Routinely on the battlefield




The Big Question:

How do we do it?

EVOLUTION OF THE TRAUMA CART



CPD DEPARTMENT MOVES



The illustration shows three medical professionals in blue scrubs on the left, a long staircase leading up to a classical building entrance in the center, and a person sitting at a desk with a laptop on the right.

TRAUMA CASE CART

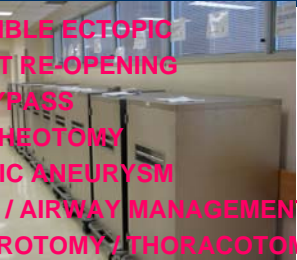
- Case carts are available 24 / 7
- CPD restocks on priority basis
- Locked with coloured tag
- Contain everything necessary



A photograph of a metal rolling cart with four shelves. The shelves are filled with various medical supplies, including boxes and bags, organized for emergency use.

Trauma Case Carts:

- POSSIBLE ECTOPIC
- CHEST RE-OPENING
- AC BYPASS
- TRACHEOTOMY
- AORTIC ANEURYSM
- NECK / AIRWAY MANAGEMENT
- LAPAROTOMY / THORACOTOMY



A photograph showing a row of several white, rectangular trauma case carts lined up in a hallway.

**TRAUMA LAPAROTOMY /
THORACOTOMY CART**

1990's

- Drapes – table cover, universal pack
- Extras – suction tubing, sponges, blades
- Instruments – basic Major General Tray
- Available – vascular clamps, bookwalter

**TRAUMA LAPAROTOMY /
THORACOTOMY CART**

2002

- Drapes - Custom drape pack – table drape, universal drape, 2 suction tubings & tips, blades, sponges, ratec gauze
- Extras – trauma sponges 24" x 24"
- Instruments – Trauma Tray – vascular clamps & beep balfour included - abdominal vascular tray
- Available – Thoracotomy tray, extra long instruments, Bookwalter

**TRAUMA LAPAROTOMY /
THORACOTOMY CART**

2003-2004

- Drapes – custom pack unchanged
- Instruments – Thoracotomy combined with Trauma tray – abdominal thoroco vascular
- Available – extra long instruments, scapula retractor, bookwalter
- AV shunt – Rummel tourniquet system for liver &/or portal cava injury

TRAUMA TRAY – Basic Instruments



Trauma Tray – Retractors



Inside the case cart

Every effort is made to ensure that the case cart is as complete as possible, and combined with the stock contents of the room, the Circulating Nurse should not have to leave the room during a Trauma.
This is certainly the ideal for which we strive.



- Beginning of case: BIN # 1**
- Foley catheter & urimeter
 - Skin staple extractor
 - Prep pack
 - Cautery tips
 - Trauma sponges

- As case progresses: Bin # 2**
- EXTRA INSTRUMENTS
- Scapula retractor
 - Finochetti
 - Atrio-caval shunt kit
 - Thoracic TA stapler & cartridges
 - Bulldogs

Nearing the end: Bin # 3

Drains

- Drains of all shapes and sizes from penrose drains, JP drains to chest tubes
- Pleuravacs
- Sump drains
- Connectors

CLOSING: Bin # 4

- Skin staplers
- Closure devices – retention bridges, Bogotá bags, surgifishes
- Dressing material – from bactigras to telfa
- Ostomy and stoma bags
- Dressing gauze, Montgomery Tie Tapes
- Elastoplast & mefix
- Island dressing (strips)

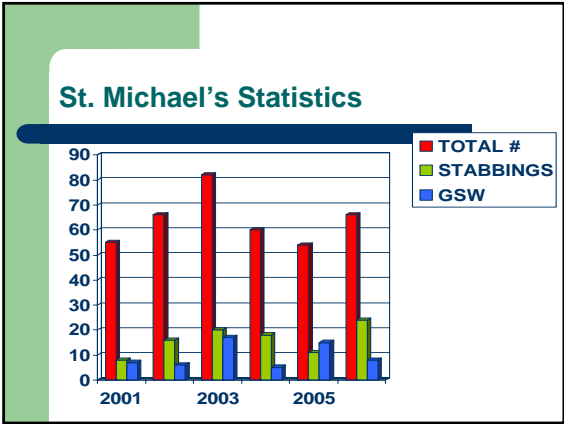
One is never enough:

With an organized case cart, we breathed a collective sigh, but

Two traumas within 15 minutes taught us to have two case carts complete and ready to go.

One is in the OR 24/7 and the other in CPD

Three complete sets of instruments and supplies ready for restocking



- ### Effects of the summer of the gun 2005:
- We were ready
 - 2003 our Autumn of the Gun prepared us for the upcoming years
 - Perioperative impact was minimal
 - Two complete trauma carts ready to go at a moments notice
 - Impact on the city was significant

- ### Effects of the summer of the gun 2005:
- Money poured in the city
 - Social programs increased
 - Community programs aimed at youths
 - Policing became community based
 - Policing targeted troubled areas
 - Gangs were disrupted or eliminated

THANK YOU