Office of the Chief Coroner

Province of Ontario

Annual Report
2007

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Message from the Chief Coroner

I am pleased to present the Annual Report of the Office of the Chief Coroner for Ontario for the year 2007. This was a very busy year for our Office during which there were a series of significant events, which led to transformational change in the death investigation system in our province.

On April 25, 2007, the Government of Ontario, announced a public inquiry into pediatric forensic pathology in Ontario as a result of an investigation commissioned by Dr. Barry McLellan, then Chief Coroner for Ontario, of a series of autopsies conducted by Dr. Charles Smith between 1981 and 2001. During this period, it was alleged that Dr. Smith's conclusions may have led to inappropriate outcomes in the criminal justice system and the child protection system. Mr. Justice Stephen Goudge was appointed Commissioner of the Inquiry. The inquiry commenced its hearings in late autumn 2007. The hearings were not complete by the end of the year and continued into the spring of 2008. The findings of the inquiry and its recommendations will be the subject of next year's report.

Through this period of change and difficulty, the Office of the Chief Coroner for Ontario continued to provide comprehensive death investigation services to the citizens of Ontario. The staff continued their professional and administrative work, led ably by Dr. Bonita Porter, who was appointed Chief Coroner in September 2007. For the work and professionalism of staff, the senior management of the office are truly grateful.

Though there is no doubt that the year 2007 was a challenging one, staff remained committed to providing the best death investigation services possible and, in doing so, giving exemplary service to the citizens of Ontario. This annual report encapsulates the work done by these committed and diligent individuals.

Ontario Coroners' System

Ontario's death investigation system has its origins in eleventh century England. When a body was found, a representative of the Crown, formerly known as the "Crowner" was responsible for answering five questions:

- **Who** was the deceased?
- **Where** did he die?
- **When** did he die?
- **How** did he die?
- **Who** was to blame?

Present-day coroners no longer determine legal responsibility. Their investigations include an examination of the manner and circumstances surrounding the death.

To help the "Crowner" make his findings, he summoned all the men from the surrounding villages to give evidence. This evolved into a selected jury to hear the evidence. The "Crowner" (now referred to as a coroner) had other functions such as the collection of taxes and seizure of certain goods on behalf of the crown. A coroner's appointment in the county was as important as that of the sheriff. The duties and powers of the coroner were modified over the centuries to meet the needs of those parts of the world that inherited the English system of Common Law. The Ontario Coroners' System is based on the English model.

Pursuant to the *Coroners Act*, all coroners in Ontario must be licensed to practice medicine in the province and are appointed by the Lieutenant Governor for an indefinite term. They investigate all unnatural deaths such as those where foul play, suicide, accident, negligence and malpractice are suspected or alleged on a fee-for-service basis. Today, the coroner is required to answer the following questions in the course of their duties:

- The **identity** of the deceased
- **How** the death occurred (i.e. the medical cause of death)
- **When** the death occurred
- **Where** the death occurred and
- **By what means** the death occurred (i.e. natural, suicide, accident, homicide or undetermined)

In 2007, there were approximately 325 investigating coroners and 35 coroners specially qualified to conduct inquests.

Mission Statement

The Office of the Chief Coroner for Ontario serves the living through high quality death investigations and inquests to ensure that no death will be overlooked, concealed or ignored. The findings are used to generate recommendations to help improve public safety and prevent future deaths in similar circumstances.

Motto

Ontario coroners have adopted the following phrase coined by MP Thomas D'Arcy McGee (1825-1868), as their motto:

"We speak for the dead to protect the living."

This motto addresses the fundamental mandate of the Ontario Coroners' System: answering questions surrounding deaths requiring investigation under the Coroners Act and utilizing the information gathered to prevent similar deaths and promote public safety.

Organizational Structure

The activities of the Office of the Chief Coroner fall under the jurisdiction of the Community Safety Division of the Ministry of Community Safety and Correctional Services-Community Safety Division. The ministry is committed to ensuring that Ontario's communities are supported and protected by law enforcement and public safety systems that are safe, secure, effective, efficient and accountable. These systems include emergency measures, scientific investigations, coordination of fire safety services and the coroners' system.

The Chief Coroner is responsible for:

- Administering the Coroners Act
- Supervising, directing and controlling all coroners in Ontario
- Conducting programs for the instruction of coroners in their duties
- Bringing the findings and recommendations of coroners' juries to the attention of appropriate persons, agencies and ministries of government
- Preparing, publishing and distributing a code of ethics for the guidance of coroners
- Performing such other duties as are assigned by any other Act or by the regulations of the Lieutenant Governor in Council

The Office of the Chief Coroner is comprised of the following program areas:

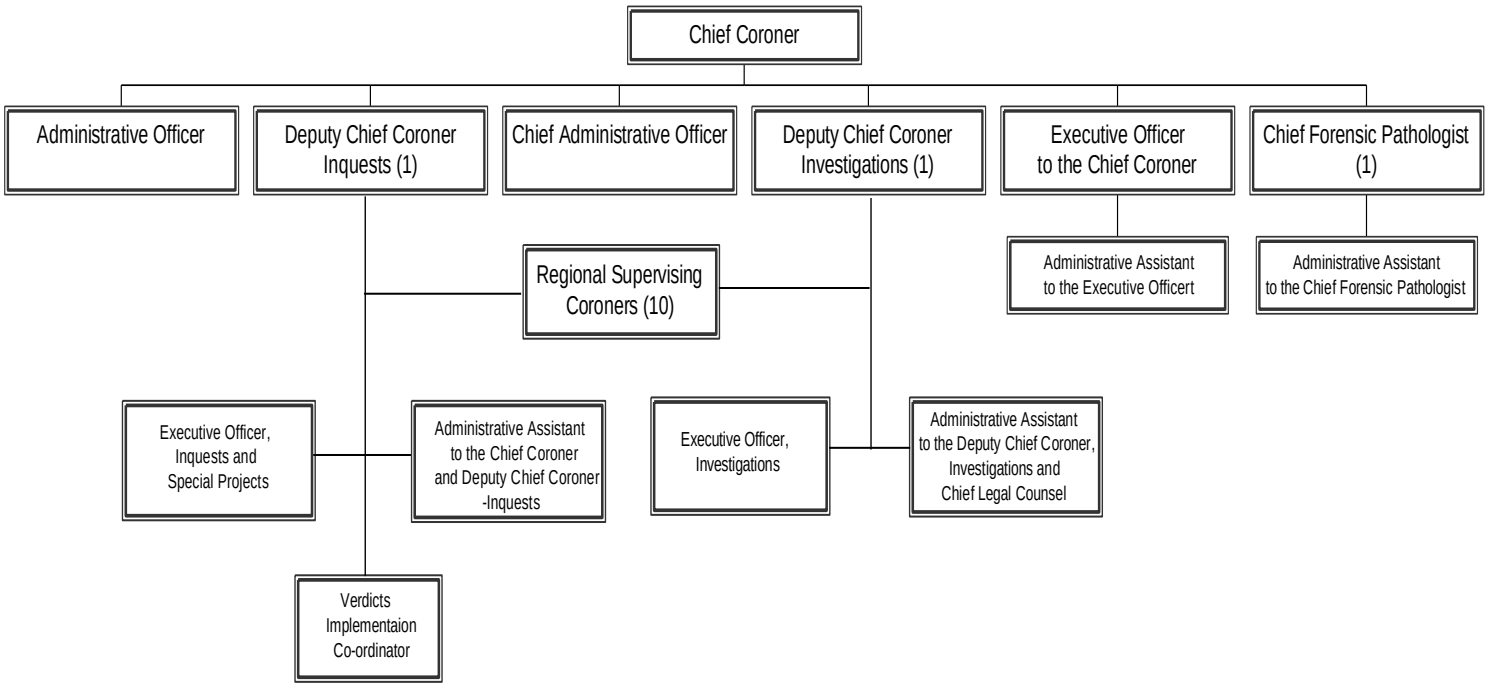
- Investigations
- Inquests
- Pathology Services
- Legal Services and
- Program Support

Organizational Structure

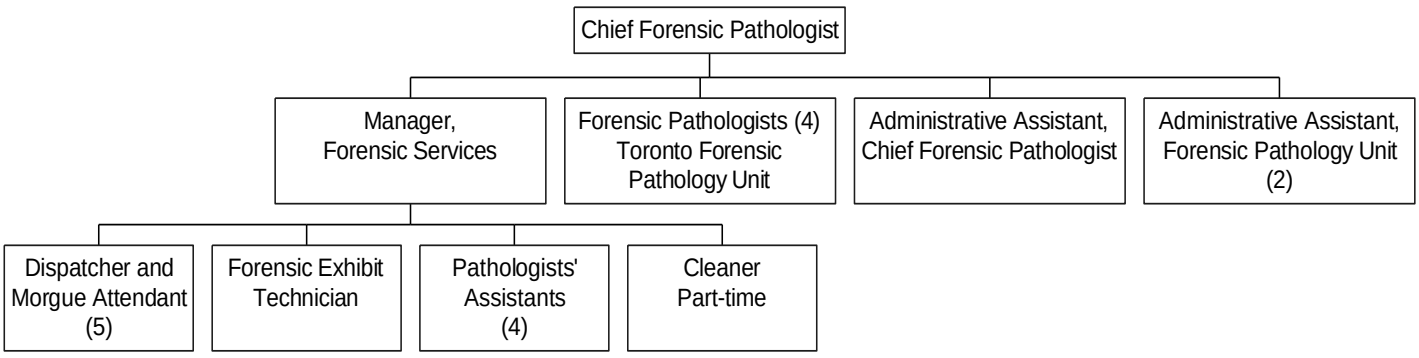
In addition to its corporate office in Toronto, the Office of the Chief Coroner has a number of regional offices throughout the province. Each office is managed by a Regional Supervising Coroner with support from administrative staff. The regions and their respective boundaries are outlined below:

Region	Office Location	Boundaries
East	Peterborough	Haliburton, Hastings, Manitoulin, Muskoka, Nipissing, Northumberland, Parry Sound, Peterborough, Renfrew, Sudbury, Victoria
East	Kingston	Dundas-Glengarry, Frontenac, Lanark, Leeds-Grenville, Lennox-Addington, Ottawa-Carleton, Prescott-Russell, Prince Edward County and Stormont
West	St. Catharines	Brant, Haldimand-Norfolk, Hamilton-Wentworth, Niagara
West	London	Bruce, Elgin, Essex, Grey, Huron, Kent, Lambton, Middlesex, Perth
North	Thunder Bay	Algoma, Cochrane, Kenora, Rainy River, Temiskaming, Thunder Bay
Central	Guelph	Dufferin, Halton, Oxford, Simcoe, Waterloo, Wellington
Central	Toronto East	Toronto (east of Yonge Street)
Central	Toronto West	Toronto (west of Yonge Street)
Central	Brampton	York, Durham, Peel

Office of the Chief Coroner – Organizational Structure – 2007



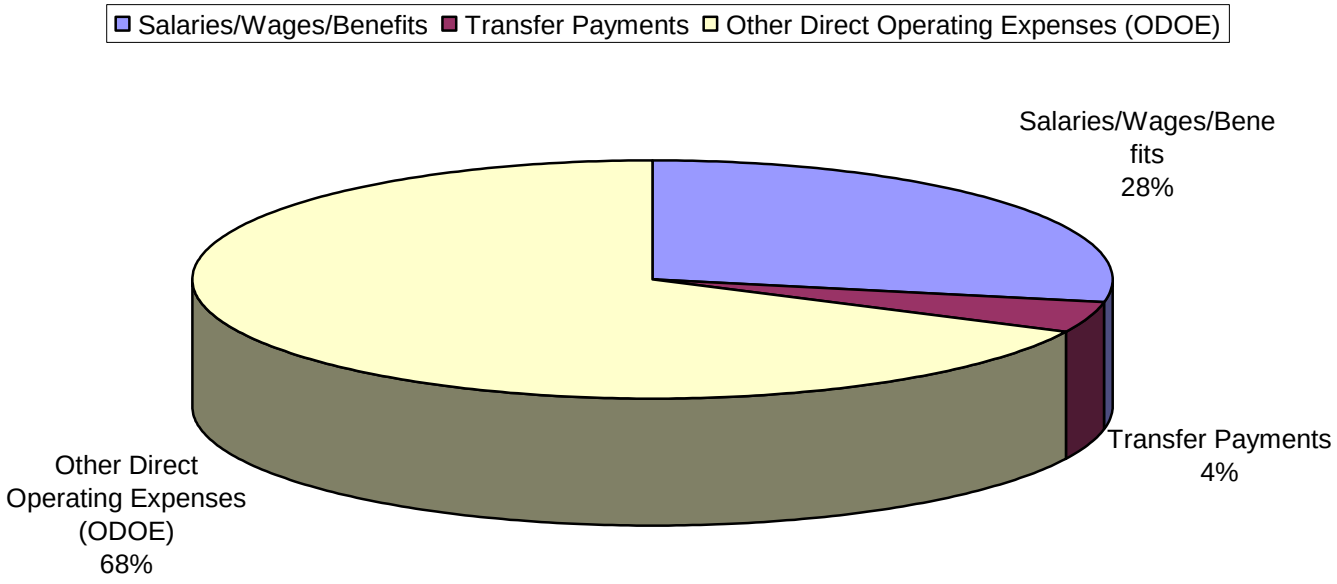
Forensic Pathology Unit – Organizational Structure – 2007



Budgets

2006-2007 Budget ($25.9 Million)

ODOE - Transportation, Administration, Inquests, Pathology/Medical Services, Supplies & Equipment



Pathology Services

An autopsy is an examination of a body for the purpose of determining cause of death. This procedure is performed under the authority of a coroner's warrant when the findings may assist in fulfilling the purposes of the investigation. In cases where a coroner can reasonably determine cause of death based on medical history, treatment, circumstances of the death and the condition of the body, an autopsy may not be necessary.

Autopsies can be routine (non-criminally suspicious) or criminally suspicious (homicide) in nature. The criminally suspicious or homicide cases require the expertise of Forensic Pathologists; specially trained experts who may be expected to provide testimony in a court of law. Requirements of autopsies may include collection of evidence of violence and/or trauma to support a criminal investigation, identification of the deceased or determination of cause of death when is cannot otherwise be determined.

The Office of the Chief Coroner is home to the Provincial Forensic Pathology Unit for the Province of Ontario. Located in Toronto and commonly referred to as the Toronto Morgue, this unit offers forensic and non-forensic autopsy services to coroners from across the province. Formerly under the leadership of the Deputy Chief Coroner – Forensic Services (2005) and presently the Chief Forensic Pathologist (2006), this unit has access to a variety of experts whose knowledge and expertise in specific areas can assist in the death investigation process (i.e. forensic anthropologists, dentists, toxicologists). The mandate of the Provincial Forensic Pathology Unit is to ensure that the people of Ontario are provided with forensic pathology services that are of the highest possible quality.

The Office of the Chief Coroner has been providing pathology services to the nation's Armed Forces for a number of years. Military personnel killed in Afghanistan and elsewhere undergo an autopsy at the Provincial Forensic Pathology Unit in order to:

- Aid in identification
- Determine cause of death
- To better understand the patterns of injury in war trauma, which may allow for the design and implementation of improved protective equipment, which may prevent future deaths.

The Office of the Chief Coroner retains the services of several pathologists around the province on a fee-for-service basis and is pleased to partner with a number of quality pathology units located across Ontario. Where appropriate, autopsies are performed in hospitals that are as close as possible to the family of the deceased to provide more timely service.

The following figures detail the number of autopsies performed under a coroner's warrant in 2007:

Number performed at the Provincial Forensic Pathology Unit: 1353

Provincial total: 6811

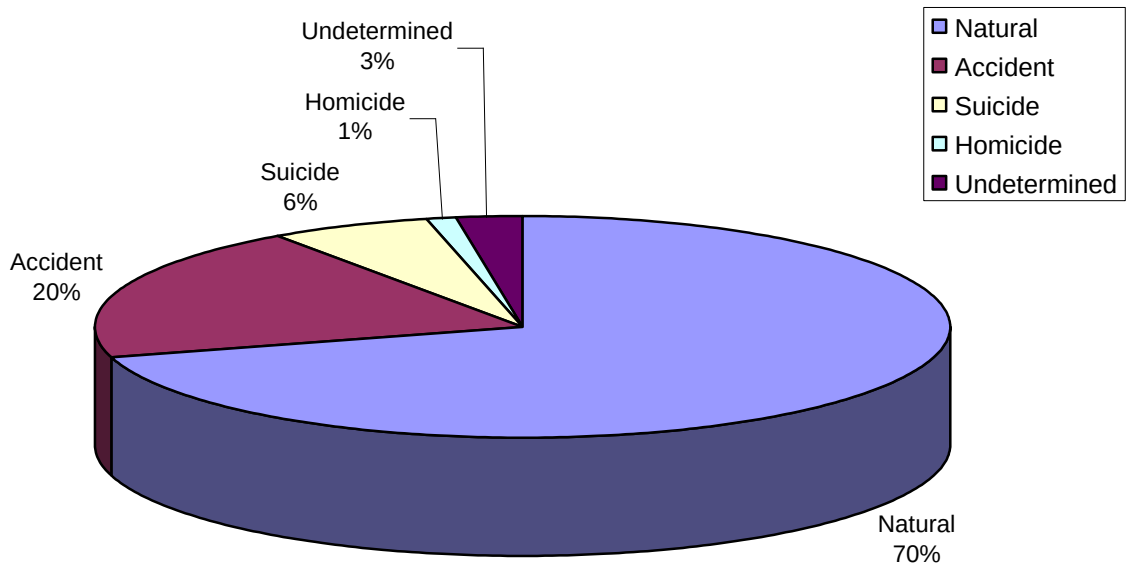
Death Statistical Data

2007 Manner of Death by Region and Office

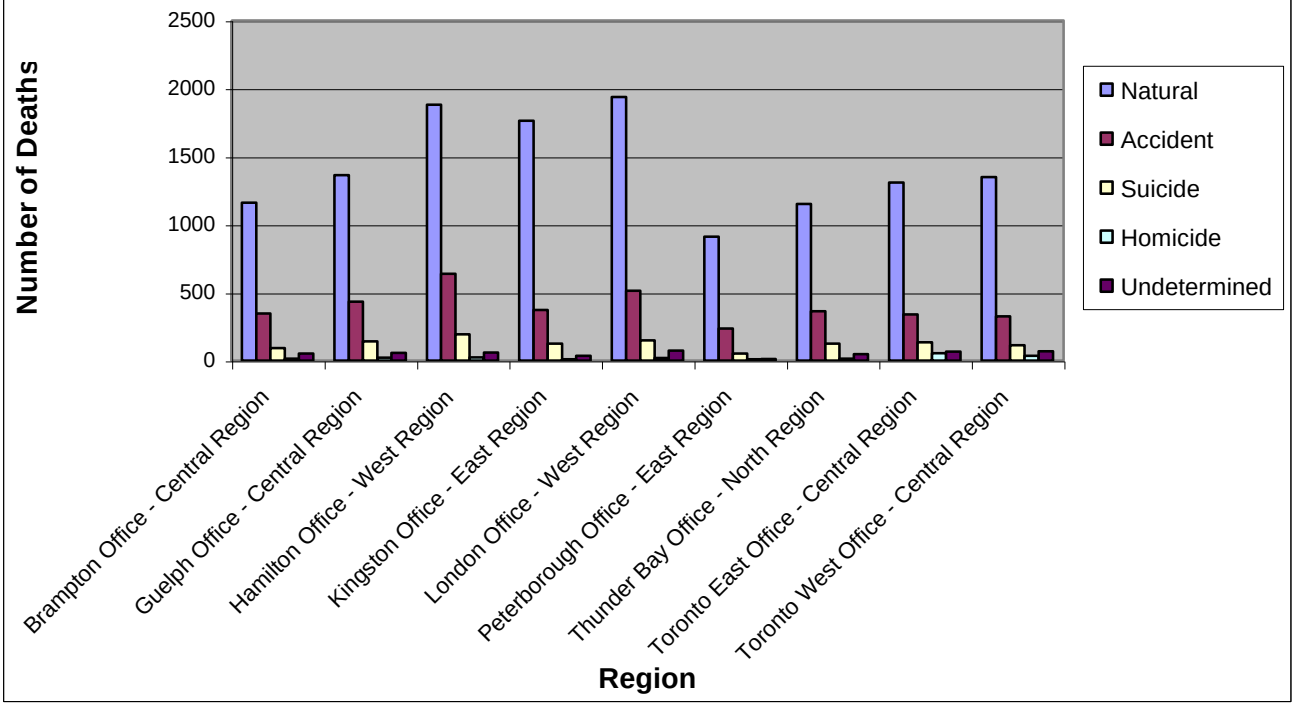
	Natural	Accident	Suicide	Homicide	Undetermined	Skeletal	Total
Peterborough Office - East Region	911	235	52	9	12	10	1229
Kingston Office - East Region	1763	372	125	10	35	7	2312
London Office - West Region	1938	514	149	19	73	7	2700
St. Catharines Office - West Region	1882	639	193	23	58	36	2831
Thunder Bay Office - North Region	1150	362	124	13	48	14	1711
Toronto East Office - Central Region	1308	339	134	55	67	12	1915
Toronto West Office - Central Region	1349	325	112	36	69	2	1893
Brampton Office - Central Region	1160	346	91	15	51	11	1674
Guelph Office - Central Region	1364	433	141	22	57	21	2038
Total	**12825**	**3565**	**1121**	**202**	**470**	**120**	**18308**

NOTE: There were 87,588 deaths registered in Ontario in 2007 (Source: Vital Statistics)

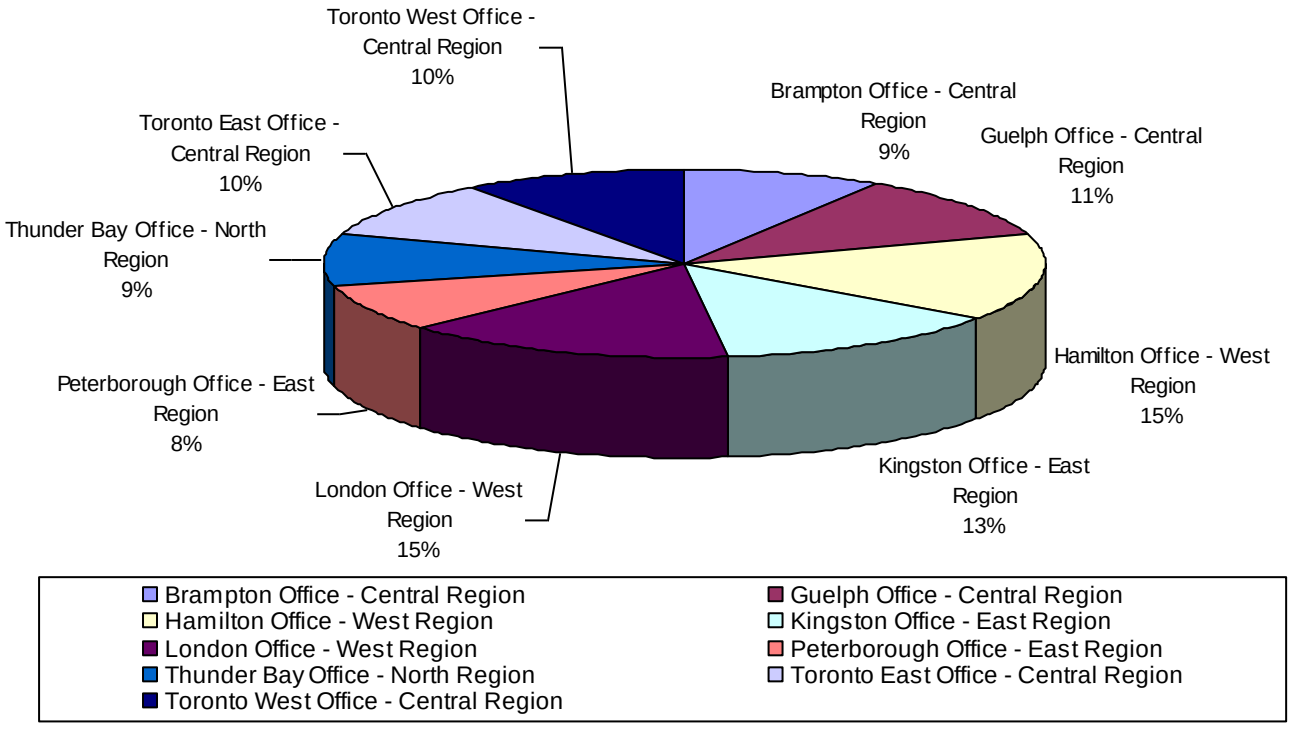
Total Number of Deaths by Manner (2007)



Summary of Manner of Death by Region (2007)



Total Deaths per Region (2007)



Top Ten Causes of Death in the Province of Ontario (2005 and 2006)

Top Ten	2007		
Cause of Death	Male	Female	Total
Natural Disease – Cardiovascular - Myocardial	**4102**	**2168**	**6270**
Natural Disease - Pulmonary	**942**	**943**	**1885**
Fall/Jump-Same Level	**530**	**797**	**1327**
Natural Disease – CNS/Neurologic	**493**	**725**	**1218**
Natural Disease – Gastrointestinal	**480**	**396**	**876**
Trauma – Motor Vehicle, Vehicle/ Pedestrian Collision	**584**	**276**	**860**
Natural Disease – Unspecified/ Other	**387**	**433**	**820**
Drug Toxcity (Acute)	**421**	**257**	**678**
Natural Disease – Cardiovascular – Other, Peripheral Vascular	**393**	**277**	**670**
Asphyxia –Hanging	**348**	**79**	**427**

Coroner's Inquests

In Ontario, specially trained coroners preside over inquest proceedings. Jurors for coroner's inquests are drawn from the traditional jury pools used in other judicial proceedings. Just like coroners, juries must answer the following five questions and they may make recommendations as required:

- The **identity** of the deceased
- **How** the death occurred (i.e. the medical cause of death)
- **When** the death occurred
- **Where** the death occurred and
- **By what means** the death occurred (i.e. natural, suicide, accident, homicide or undetermined)

There are two types of inquests: mandatory and discretionary. Mandatory inquests are conducted pursuant to the legislative requirements of the Coroners Act. Mandatory inquests are conducted into deaths arising from accidents in the course of employment at construction, mining, pit or quarry sites and deaths occurring while being detained or in custody. In 2006, the Coroners Act was amended to include the deaths of children under certain circumstances. All other inquests are discretionary and may be conducted in accordance with section 20 of the Coroners Act.

There are several factors that a coroner takes into account when deciding whether to hold a discretionary inquest. For instance, the coroner must consider whether the answers to the five questions are known. The coroner may also determine whether or not it is desirable for the public to have an open and full hearing of the circumstances of a death. Additionally, an inquest allows juries to make useful recommendations that if implemented, could prevent future deaths in similar circumstances.

Inquests are open to the public and the media. The verdicts and recommendations made by inquest juries are public and can be requested through the Office of the Chief Coroner.

The following inquest examples illustrate their preventative function and how these forums can lead to a safer province for all Ontarians.

Inquest #1

H.B, age18, died on December 31, 2004, in the emergency room after being transferred from custody, where he was found hanging in a district jail cell. Prior to his death, H.B was convicted of a number of charges that resulted in a 549 day sentence and was remanded into custody at the Thunder Bay Youth Centre. He was later transferred to Cecil Facer Youth Centre in Sudbury. H.B had been diagnosed with schizophrenia and the appropriate alerts had been placed on the Young Offender Tracking Information System (YOTIS). While at Cecil Facer Youth Centre, H.B assaulted a staff member, which resulted in a charge being laid against him. On December 22, 2004, H.B pleaded guilty and 15 days were added to his remaining youth sentence, which was converted to an adult sentence.

Pursuant to the *Coroners Act*, an inquest into the death of H.B was considered mandatory as the death occurred in custody. The inquest was held in Sudbury from April 30 to May 23, 2007. The inquest jury heard from 33 witnesses and over 62 exhibits were entered.

Some of the issues considered at the inquest included: sharing of information between the facilities, suicide prevention for inmates, training in suicide prevention for correctional officers and management of Aboriginal youths in custody with a mental illness.

At the conclusion of the inquest, the jury found that H.B died of Asphyxiation due to hanging and concluded that the means of his death was suicide. The jury also made a total of 16 recommendations that were directed to various agencies including the Ontario Ministry of Community Safety and Correctional Services and the Ministry of Children and Youth Services. These recommendations largely centred on improvements to information sharing, aboriginal programs in youth facilities, suicide watches and greater access to the Child and Family Service Advocate in northern Ontario.

Of the 16 recommendations directed to appropriate respondents:

- 9 recommendations were implemented or were having an alternative response implemented
- 4 recommendations were under further consideration
- 3 recommendations were rejected or were not applicable to the identified agency.

Inquest #2

D.C, age 51, was a federal inmate who died on May 23, 2007, at the Kingston General Hospital. In April 2006, D.C was remanded into custody after breeching his probation order. During his stay in custody, D.C saw a specialist for gastro-intentional bleeding and had suffered a broken jaw after an altercation with another inmate. On May 22, 2006, D.C complained of bodily pain. The nurse was concerned about his emotional state but D.C denied being depressed or suicidal. He was moved to a single cell and was later found dead by a nurse distributing medications. Resuscitation was initiated and he was taken to the hospital, where his cardiac rhythm was restored. D.C was later transferred to Kingston General Hospital where he was considered brain dead. After discussion with the family, life support was withdrawn and he subsequently died.

Pursuant to the *Coroners Act*, an inquest into the death of D.C was considered mandatory as the death occurred in custody. The inquest was held in Napanee from July 23 to July 24, 2007. The inquest heard from eight witnesses and 14 exhibits were entered.

At the conclusion of the inquest, the jury found that D.C died of asphyxia secondary to hanging and the means of his death was suicide. The jury also made a total of four recommendations that were addressed to the Ontario Ministry of Community Safety and Correctional Services. The recommendations centred mainly on enhancements to documentation processes and improvements to the visibility in inmates.

Of the four recommendations directed to appropriate respondents:

- 3 recommendations were implemented
- 1 recommendation was under further consideration.

Inquest #3

K.P, age 38, died on July 29, 2001, as a result of an injury received the day before while working on site at a nickel mine. On July 28, 2001, K.P and a co-worker were attempting to free some nickel ore which was stuck in a vertical mine shaft by blasting beneath the stuck nickel ore. During their attempts, K.P sustained severe crushing injuries to his abdomen. He was rushed to hospital and despite surgery, he succumbed to his injuries.

Pursuant to the *Coroners Act*, an inquest into the death of K.P was considered mandatory as the death occurred during the course of employment on a mine. The inquest was held in Sudbury from March 19 to March 21, 2007. The jury heard from seven witnesses and 13 exhibits were entered.

At the conclusion of the inquest, the jury found that K.P died of severe crushing injury to the abdomen associated with massive blood loss and the means of his death was accidental. The jury made a total of six recommendations addressed to the Ministry of Labour, the employer and other mining companies. Some of the recommendations focused on ensuring greater safety and training around the practice of blasting.

Of the six recommendations directed to appropriate respondents:

- 5 recommendations were implemented by the responding agencies
- 1 recommendation was rejected

Inquest #4

L.D, age 36, was a recovery room nurse who died while on duty the morning of November 12, 2005. M.D was a 50 year old anaesthesiologist, who worked with L.D and ultimately passed away on November 15, 2005, after stabbing L.D and then taking his own life.

In 2004, both L.D and M.D were involved in an intimate relationship. L.D had purchased a home for her and her daughter, and M.D had financially assisted in the purchase. Witnesses at the inquest testified that M.D had several verbal disputes with co-workers and a nurse manager had filed a written complaint against M.D. This resulted in a hospital investigation and M.D was placed on probation while agreeing to undergo anger management as part of his signed Memorandum of Understanding.

On February 27, 2005, M.D attempted suicide in the presence on L.D. M.D was rushed to hospital, where he was treated and involuntarily admitted to the acute psychiatric ward. At this point, L.D informed M.D that the relationship was over. On March 10, 2005, M.D was discharged from the hospital's psychiatric ward and began psychotherapy. During the initials days after his discharge, M.D attempted to contact L.D at her place of work.

On April 5, 2005, M.D threatened L.D and her father using a potentially embarrassing picture of L.D and demanded that they return the money he put towards the purchase of L.D's home. Later that month, L.D attended a hospital security meeting regarding M.D and sought a peace bond. However, her hearing was not scheduled until some weeks after her death. In the meantime, the hospital had cancelled M.D's security card.

During this time, M.D was seeing a psychiatrist who had not received information from the workplace and was not aware of the extent of M.D's behaviour. M.D notified his psychiatrist of his readiness to return to work and the psychiatrist wrote to the Physician Health Program, which accepted that M.D was ready to return to work. This decision was made without consulting with nursing staff and L.D.

Upon returning to work, M.D was involved in several incidents involving intimidating behaviour on his part, including staring at L.D while in the recovery room.

On November 12, 2005, L.D and M.D were scheduled to work together. L.D was in the recovery room when M.D entered, stabbed her and then left the building. While driving away, M.D called his wife and told her that he killed L.D and was going to kill himself. The police tracked his car and found him unresponsive. Paramedics aggressively resuscitated M.D; however, he died 3 days later in intensive care.

Pursuant to the *Coroners Act*, an inquest into the death of L.D and M.D was considered discretionary. The inquest was held in Windsor on September 24, 2007, and concluded on December 4, 2007. The jury heard from 51 witnesses and 176 exhibits were entered as evidence.

Some of the issues considered at the inquest included: legislation governing physician behaviour and privileges, disciplinary processes for physicians accused of problematic behaviour and issues of domestic violence. The jury found that L.D died from bleeding due to multiple stab wounds to the chest and the means of her death was homicide; and M.D died from anoxic ischemic encephalopathy and bronchopneumonia due to Midazolam toxicity and the means of his death was suicide.

Of the 65 recommendations directed to appropriate respondents:

- 49 recommendations were implemented
- 6 recommendations were rejected
- 20 recommendations were either still under review or not applicable to the identified agency

Inquest #5

L.L, age 71, was an owner of a construction company and died on December 16, 2004, while working on an elevated platform. On the day of his death, L.L was installing the drywall for the spray booth system. Although workers were present in the building, L.L was working alone at the time of the incident and nobody observed him fall off the platform that was elevated at a height of 81 inches off the ground.

All of the witnesses interviewed stated that they observed L.L on the floor near the platform with obvious signs of head trauma. A tape-applying tool was observed lying on the floor in the area in which L.L was found. Paramedics were called to the scene and L.L was taken to the local hospital, where he was pronounced dead. The local police service and the Ministry of Labour conducted their own investigations into this incident.

Pursuant to the *Coroners Act*, an inquest into the death of L.L was considered mandatory as the death occurred at a construction site. The inquest was held in Brampton from December 10 to December 12, 2007. Evidence presented at the inquest established that the guardrail of the elevated work platform had been removed and chains on the end of the platform in which he was working were not installed prior to the incident. L.L was found not to be wearing a safety belt, harness or hardhat.

Some of the issues explored at the inquest included: proper use of personal protective equipment, as well as safety practices and training. The jury heard from three witnesses and eight exhibits were entered as evidence. At the conclusion of the inquest, the jury found that L.L died of a compression to the upper cervical cord due to subluxation of the atlanto-occipital joint secondary to a fall from a scaffolding. The jury also concluded that the means of his death was accidental.

Of the 22 recommendations directed to appropriate respondents:

- 14 recommendations were implemented,
- 3 recommendations were under consideration
- 5 recommendations were either rejected or were not applicable the identified agency

Inquest #6

A.S, age 27, was attending an English language school when he died on December 8, 2003 in a building collapse. On the day of his death, A.S was attending class on the top floor of a building that was adjacent to a local theatre that was being demolished.

In July 2003, the owner of the theatre had contracted a large and well-experienced demolition company to tear down the theatre to make way for a condominium. Under Ontario Building Codes, a demolition permit must first be issued by the city and an engineer must undertake a general review of the project where demolition exceeds three stories in height. An engineer was retained by the demolition company and the appropriate forms were submitted to the city. The city granted a demolition permit on September 19, 2003.

On October 10, 2003, the Ministry of Labour received a *Notice of Project* for the demolition as required under the *Occupational Health and Safety Act*. The Regulations for Construction Projects set out the general safety requirements for demolition projects. The demolition company employed the use of a high reach hydraulic shear which could reach to heights of 70 feet and was systematically used to demolish the structural steel frame and masonry walls. The operator had seven years experience working with the hydraulic shear and over 19 years of experience in the industry. The backstage area had been successfully demolished. On the morning of December 8, 2003, the operator had performed a series of cuts on the metal roofing trusses when the theatre collapsed causing the masonry walls to be thrust out onto the surrounding buildings.

Some of the debris landed on the roof of the building that housed the school, where A.S had been attending. The roof collapsed crushing A.S and injuring other occupants of the building. The body of A.S was located and he was pronounced dead at the scene.

Pursuant to the *Coroners Act*, an inquest into the death of A.S was not considered mandatory and a discretionary inquest was called. The inquest was held in Toronto from September 17 to October 2, 2007. At the conclusion of the inquest, the jury found that A.S died from blunt force pelvic trauma and traumatic asphyxia. The means of his death was found to be accidental.

Of the 8 recommendations directed to appropriate respondents:

- 4 recommendations were implemented
- 4 recommendations were under further consideration

Inquest #7

D.D, age 46, was serving an intermittent sentence at a provincial detention centre when she died on September 22, 2002. D.D was first convicted of a criminal offence in 1977 and subsequently had several additional criminal convictions primarily for theft.

During the last ten years of D.D's life, she developed an addiction to prescription medications and was diagnosed as having Hepatitis C. At the time of her death, D.D was a patient on a Methadone Maintenance Program.

On May 3, 2002, D.D received an intermittent sentence to be served on Saturdays and Sundays and would be completed on October 19, 2002. On September 21, 2002, D.D reported to the detention centre as required and was logged in by an experienced correctional officer. Evidence presented at the inquest noted that D.D appeared impaired, displaying slurred speech and unsteadiness in her feet. The officer referred to D.D's documentation and noted that on a previous admission it had been determined that her state was due to her prescription medications. The officer also consulted with a nurse in the healthcare section. As part of the admission procedure, the officer stripped searched D.D. This did not include a cavity search and nothing was found.

D.D was escorted to a cell block with three other inmates. One of those inmates gave evidence that D.D admitted to bringing in medications. The other two inmates submitted written statements indicating that they observed D.D to have removed a package of what appeared to be pills from her vaginal area and observed D.D ingesting pills over the course of the evening and early morning. At 0815 on September 22, 2002, an inmate observed that D.D appeared blue in colour and was unresponsive. The other inmates notified the guard. The captain and female correctional officer entered the cell and determined that D.D was without vital signs. CPR was commenced and EMS was called.

EMS arrived and took over the resuscitation efforts, but D.D could not be revived and was pronounced dead. A post-mortem examination was conducted and revealed acute congestion of the lungs with foreign body crystalline material noted, which the pathologist viewed as evidence of remote intravenous drug abuse. A plastic bag was found in the vagina containing some tablets and a green leafy material. Post-mortem toxicology revealed potentially lethal concentrations of Methadone Doxepin, as well as Oxycodone.

Pursuant to the *Coroners Act*, an inquest into the death of D.D was mandatory as the death occurred in custody. The inquest was held in Toronto from October 9 to October 10, 2007. The jury heard from 11 witnesses and 16 items were entered as exhibits. The jury found that D.D died from multidrug toxicity to Methadone and Doxepin and the means of death was accidental.

Of the 2 recommendations directed to appropriate respondents:

- 1 recommendation was implemented
- 1 recommendation was under consideration

Inquest #8

S.M, age 43, died on June 5, 2005, after arriving at the Ottawa International Airport on a one way fight from Halifax, Nova Scotia. Prior to his arrival, S.M was unemployed and living in Montreal in long-term housing for people with mental health problems. He was informed sometime before his death that he could no longer stay at this residence.

In the fall of 1999, S.M was diagnosed with schizoaffective disorder with delusional features and was hospitalized on several occasions. At the time of his death, S.M was not taking his prescribed medication and had been traveling to different parts of the country. S.M had no prior police contact while traveling.

Upon arriving at the airport on June 5, 2005, S.M proceeded to the airport's old terminal and departure area where he took a seat. He began behaving strangely, throwing himself on the ground and injuring himself by diving head first from a bench onto the floor. S.M was restrained by nearby passengers and airport staff until the local police service arrived, who placed S.M in handcuffs. Police and witnesses described S.M to have super natural strength. Paramedics also arrived on scene and placed S.M on a stretcher and restrained him with multiple belts in a prone position. S.M was injected with a sedative to help calm him down. A few minutes later S.M experienced severe distress and paramedics attempted to resuscitate him with no success. S.M was pronounced dead at the scene. On June 6, 2005, a post-mortem examination was conducted on the body of S.M and found that the cause of death to be consistent with positional asphyxia.

Pursuant to the *Coroners Act*, an inquest into the death of S.M was considered mandatory as the death occurred in custody. The inquest was held in Ottawa from October 11 to November 2, 2007. The jury heard from 16 witness and 13 exhibits were entered. Some of the issues considered at the inquest included: the occurrence of positional asphyxia in restraints in the prone position, its association with excited delirium and the response time of the paramedics.

At the conclusion of the inquest, the jury found that S.M died of positional asphyxia and the manner of death was accidental. The jury also made 11 recommendations, some that centred on enhancing training of emergency responders when symptoms of excited delirium are present, calls for more research on excited delirium, and improvements to response times and treatment processes of the paramedic service that responded.

Of the 11 recommendations directed to appropriate respondents:

- 7 were implemented or being implemented
- 3 were under consideration
- 1 recommendation received no response

Inquest #9

C.B, age 43, died on January 20, 2004, in hospital following a period of detention in police custody. On January 17, 2004, police were dispatched to a local coffee shop to assist C.B, who was disoriented. She was not able to provide the officer with a proper address or contact phone number. The officer formed the opinion that the woman was intoxicated by alcohol, and drove her to two separate locations in an attempt to leave her at her residence under the care of a responsible person.

When those attempts proved unsuccessful, the officer arrested C.B for public intoxication and took her back to the central cell block at the station so that she could be observed until such time as she was deemed capable of safely caring for herself. She was searched and booked into a cellblock by a female officer. C.B was observed to be loud and disruptive in her cell, banging on the bars and plexi-glass and shouting. The Booking Sergeant observed her to be acting strangely, half removing her sweater. So he directed that her bra be removed and placed in a locker. At no time did the officers feel that she was a serious risk for self-harm.

In the evening, the officers on duty at the time of her booking, turned supervision of the cellblock over to the evening shift officers. No specific concerns were relayed regarding C.B, although the evening officers were not aware of her rowdy behaviour.

Later in the evening, officers placed C.B in another cellblock further away from the other prisoners, as she was deemed to be disturbing them with continuous shouting and banging of cell bars. Almost two hours later that evening, C.B was discovered hanging in her cell, having made a loop out of the leggings she was wearing and hooking them on a ceiling vent grate.

Emergency response measures were immediately implemented and C.B was taken to the local hospital by ambulance. She was placed on life support until January 20, 2004, when aggressive measures were discontinued and she died.

Further investigation into her death revealed that C.B had been arrested for public intoxication on two prior occasions, both times with similar rowdy behaviour. Video monitor recordings of her arrest on January 17, 2004, revealed two periods of time where C.B attempted to hang herself. Cellblock personnel observed none of these incidents.

Pursuant to the *Coroners Act*, an inquest into the death of C.B was not considered mandatory as her death in hospital followed her period of detention in police custody. However, there had been a previous death in the same cellblock in 2001, whereby an inquest was held in 2003. The Office of the Chief Coroner

therefore decided to hold a discretionary inquest to review policies, procedures and progress that had been made in the interim period. The inquest was held in Pickering from June 11 to June 19, 2007. The jury head from 18 witnesses and 26 exhibits were entered. At the conclusion of the inquest, the jury found that C.B died from hanging and the means of her death was undetermined.

The jury also made 15 recommendations that concerned best practices around issues of addiction and mental health, training in a computerized cellblock management system, cell block checks and staffing.

Of the 15 recommendations directed to appropriate respondents:

- 6 recommendations were either being implemented or had an alternative response implemented
- 3 recommendations were under further consideration
- 6 recommendations were either not applicable to the identified agency or were unable to be properly coded

Inquest #10

E.M, age 29, died on July 19, 2002, while working on a construction project. On July 17, 2002, E.M, an apprentice bricklayer, was assisting other bricklayers at the site where the crew was applying brick veneer to the exterior of the building from a scaffold platform between the fifth and sixth floors.

In the early afternoon, the masonry crew decided to stop work for a coffee break. E.M stepped off the scaffold platform directly onto the sixth floor centre balcony and walked downstairs for her break. During the break, the scaffold platform was mechanically raised on the direction of the foreperson, resulting in a four foot gap between the floor of the scaffold platform and the balcony. The wooden guardrail that had been installed at the sixth floor centre balcony was removed earlier to facilitate transfer of materials. It was not replaced after the scaffold was removed.

Soon after, E.M and a colleague returned from their break to the now unprotected sixth floor centre balcony. The two chose not to access the scaffold platform via the designated ramp at the corner of the building. E.M's colleague accessed the scaffold platform by stepping onto an overturned plastic drywall compound container and pulled himself up using his upper body. E.M also stepped onto the plastic container and placed her hands onto the platform. At that point, the plastic container moved and E.M lost her balance, falling between the balcony and platform. She fell approximately 37 feet onto a concrete canopy.

She was immediately transported to the local hospital, where she died two days later having sustained critical head injuries. The investigating coroner, the local police service and the Ministry of Labour conducted an investigation.

Pursuant to the *Coroners Act*, an inquest into the death of E.M. was considered mandatory as the death occurred at a construction site. The inquest was held in Hamilton on November 2, 2007. The jury heard from seven witnesses and six items were entered as exhibits. At the conclusion of the inquest, the jury found that E.M died from severe head injuries due too a fall of 37 feet down onto a concrete canopy. The means of her death were found to be accidental.

The jury also made seven recommendations concerning the proper use of guardrails, scaffolding, Ministry inspections and enhanced training for employees. Of the seven recommendations directed to appropriate respondents:

- 4 recommendations were implemented
- 2 recommendations were under consideration
- 1 recommendation did not receive a response

Aid to Inquests

This Aid to Inquests provides general information and assistance to persons who may wish to apply for, and who are granted standing at an inquest in Ontario. This information is meant to provide an understanding of the conduct and outcome of an inquest and is not intended to be a substitute for legal advice.

When is an Inquest called?

There are two types of inquests: mandatory and discretionary. Mandatory inquests are conducted pursuant to legislative requirements under the Coroners Act. Mandatory inquests are conducted into deaths occurring in the course of employment at construction, mining, pit or quarry sites; deaths occurring while being detained or in custody and deaths of children under certain circumstances (2006). All other inquests are considered discretionary and may be conducted in accordance with section 20 of the Coroners Act.

There are several factors that a coroner takes into account when deciding whether to hold a discretionary inquest. For instance, the coroner must consider whether the answers to the five questions are known. The coroner may also determine whether or not it is desirable for the public to have an open and full hearing of the circumstances of a death. Additionally, an inquest allows juries to make useful recommendations to prevent other deaths in similar circumstances. This preventative function is an important aspect of inquests because it encourages changes that will result in a safer province. Recommendations from previous inquests have resulted in changes to legislation (i.e. graduated licensing and labour laws), policy (i.e. how the police and courts administer justice), procedures (i.e. how we protect children and how safe medical practices are encouraged) and product development (i.e. safety mechanisms for motorized vehicles and other consumer goods).

A relative (as defined in S. 26 the Coroners Act) of a deceased, may request an inquest by submitting this request in writing to the investigating coroner. This request will be presented to the Regional Supervising Coroners management team to determine whether an inquest should be conducted in accordance with section 20 of the Coroners Act.

There is no time limit between the date of death and the convening of an inquest.

What an Inquest is NOT

An inquest is not an adversarial process. It is also neither a trial, nor a process for discovery. It is not a royal commission or a campaign or crusade directed by personal or philosophical agendas. It is an inquisitorial process designed to focus public attention on the circumstances of a death and to be a dispassionate public examination into the facts. All participants have a responsibility to conduct themselves professionally and with dignity and respect to the process.

Inquest Courtroom Behaviour

While an inquest is not a criminal court of record, it is a court process. Appropriate behaviour, dress, and demeanour is expected of participants, the media, and others attending an inquest.

The Jury

The inquest jury consists of five persons selected by the coroner's constable from a list of jurors from the community. Service on an inquest jury is a public duty.

On the first day of the inquest, the jurors meet and select a foreperson from their group. Jurors are then sworn or affirmed to "diligently inquire" into the death and must deliver a verdict answering the five questions regarding the death. This verdict does not be unanimous and can be reached by a majority. Jurors can take an active role in the inquest and are encouraged to ask relevant questions of the witnesses and raise issues of concern. Once the five questions are answered, jurors may, but are not required to make recommendations based on the evidence presented to them.

Inquest juries are prohibited from making any finding of legal responsibility or expressing any conclusion of law. Their role is not to assign blame, free from blame, or state or imply any judgment in their recommendations concerning the death. If a verdict does make such a finding, it will be considered improper and will not be received.

Inquest juries may be required to view photographs of the deceased's injuries or to examine the location where a death occurred. In the modern day inquest, they are not asked to view the body of the deceased.

Who can participate in an inquest?

An inquest is open to the public and the media. There are prohibitions regarding the use of cameras in the courtroom. There are also restrictions with respect to the use of recording devices in the courtroom by the media or any other person at an inquest.

A specially trained coroner presides in a quasi-judicial role over the inquest. The coroner is usually represented by a Crown attorney who acts his/her counsel. In addition, the presiding coroner shall allow other persons with a substantial and direct interest in the inquest, including persons who may be directly and uniquely affected by the recommendations, to take an active part in the proceedings. This participation is called “standing”. A person or party must apply for standing. To be granted standing, the coroner must find that they are both substantially and directly interested in the inquest.

Parties with standing may represent themselves, or have lawyers or agents represent them. Parties may cross-examine witnesses relevant to their expressed interest and may call certain witnesses of their own if the coroner finds that the evidence of such a witness is relevant to the proceedings. In order to make such a finding, the coroner will require the production of a “will say” or written statement of the anticipated evidence before the witness is called to testify.

Parties with standing can also present arguments and submissions to the jury after all the evidence has been heard. This is to ensure that every person who might be significantly affected by the verdict or recommendations has an opportunity to be heard and to present their point of view. If necessary, the coroner will hold a separate hearing to determine issues of standing or any other matter that requires a decision in the absence of the jury. Although an inquest may have lawyers representing various (and sometimes opposing) interests, it remains that no one is on trial and that the jury is not allowed to assign blame in its verdict.

The family of the deceased may wish to seek standing (with or without a lawyer), or may wish only to observe the proceedings along with the public. Depending on the circumstances, family members may also be called as witnesses at an inquest. Unless they are going to be witnesses, the deceased’s family members are not required to attend the inquest.

Witnesses who have relevant evidence to give at an inquest will be summoned to attend. Witnesses will be sworn or affirmed and must give truthful testimony. Witnesses can be cross-examined by parties granted standing at the inquest.

Evidence cannot be used to incriminate individuals in other courts unless they commit perjury. Perjury at an inquest is an offence and may lead to criminal charges. Witnesses are entitled to have their own lawyers or agents present to advise them of their rights, but further involvement requires permission of the coroner.

A court reporter is present during an inquest to record the proceedings. Transcripts of the proceedings can be obtained through the court reporter for a fee.

The coroner's constable selects the jury and assists the coroner in maintaining order during an inquest. The constable swears or affirms witnesses, assists the jury and is responsible for handling the exhibits.

The Pre-Inquest Meeting

Prior to the beginning of the inquest, the coroner may convene a pre-inquest meeting. At this meeting, which is usually conducted by counsel to the coroner, certain matters such as the scheduling of hearing days, issues to be explored, and the sharing of information are discussed to ensure an efficient and effective inquest. It is usually at this meeting that the inquest brief is handed out to parties having counsel present. The inquest brief is only distributed after the signing of an undertaking, which ensures confidentiality of the brief, and the return of the brief after the inquest is completed. If a party is not represented by legal counsel, special arrangements can be made to obtain access to the inquest brief.

Inquest Protocol

The coroner at an inquest is addressed as Mister or Madame Coroner and the jury foreperson as Mister or Madame Foreperson. After the jury has been sworn, the coroner addresses the court with opening remarks. Coroner's counsel then addresses the jury and calls the first witness. As each witness is called, the other parties with standing have the opportunity to ask relevant questions of these witnesses in cross-examination. Jurors also have the opportunity to ask questions and examine exhibits. The coroner may rule on the admissibility or relevance of evidence. Rules regarding evidence at inquests are different from other court processes.

The jury is allowed to discuss amongst themselves, the evidence outside the courtroom but these discussions must be kept secret during the inquest, during deliberations and after the inquest has been completed. The secrecy of deliberations is crucial to a fair process and to prevent harassment of jurors once the inquest is completed. Jurors are not to speak to anyone else including the media, for the duration of the inquest or to discuss their deliberations after the inquest is completed.

Generally, access to exhibits is restricted to the parties participating in the inquest. At the discretion of the coroner, and taking into consideration the privacy interests of the parties involved, exhibits may be available to the public and media for viewing during breaks. However, copying of exhibits are only be permitted by the coroner in certain rare circumstances.

When all the evidence has been heard, lawyers or agents will usually address the jury. These submissions will be a final opportunity to present the jury with interpretations of the evidence and to suggest recommendations. Joint recommendations from all parties may also be considered. Counsel to the coroner will also present closing submissions to the jury including defining points of law.

Following the arguments and submissions of all parties, the presiding coroner will charge the jury. The coroner will describe the jury's responsibilities and limitations and give them instruction regarding the law as it applies to inquests.

Verdict and Recommendations

The jury will retire with all the exhibits to consider their verdict and prepare recommendations, if any. A jury verdict that assigns blame will not be accepted. The jury must answer the five questions and they may make recommendations. Recommendations are not mandatory but they represent the voice of the community and should be considered in the prevention of similar deaths in the future. Recommendations must be based on evidence heard during the inquest.

The jury is not sequestered while they review the evidence and exhibits. They are instructed not to listen to, or read, anything about the inquest in the media and not to discuss their deliberations outside the jury room. When the jury returns to the court, the verdict is read aloud and the inquest is then closed. The verdict and recommendations are available to the public upon request, from the Office of the Chief Coroner.

The verdict and recommendations along with a brief explanation written by the presiding coroner, are sent to the Chief Coroner for distribution to agencies, associations, government ministries, or other identified organizations that may be in a position to implement the recommendations. Recipients are asked to evaluate their response to the recommendations and are requested to submit their response to the Office of the Chief Coroner within one year of the inquest. Members of the public, including the media, may request a copy of responses to inquest recommendations by submitting a written request to the Office of the Chief Coroner.

The Office of the Chief Coroner prepares an implementation report on the status of implementation of recommendations from all inquests. Implementation reports are published in an annual report on inquests that is available to the public.

Inquest Statistical Data

2007 Executive Summary

- 59 inquests were held in 2007
- 7% of the inquests conducted were discretionary
- 93% of the inquests conducted were mandatory:
  - 57% custody
  - 29% construction
  - 7% mining
- 24% of the inquests resulted in no recommendations
- 361 recommendations were made in total
- 71% of the organizations asked to respond, did respond
- 9 days was the average of each inquest

Of the recommendations:

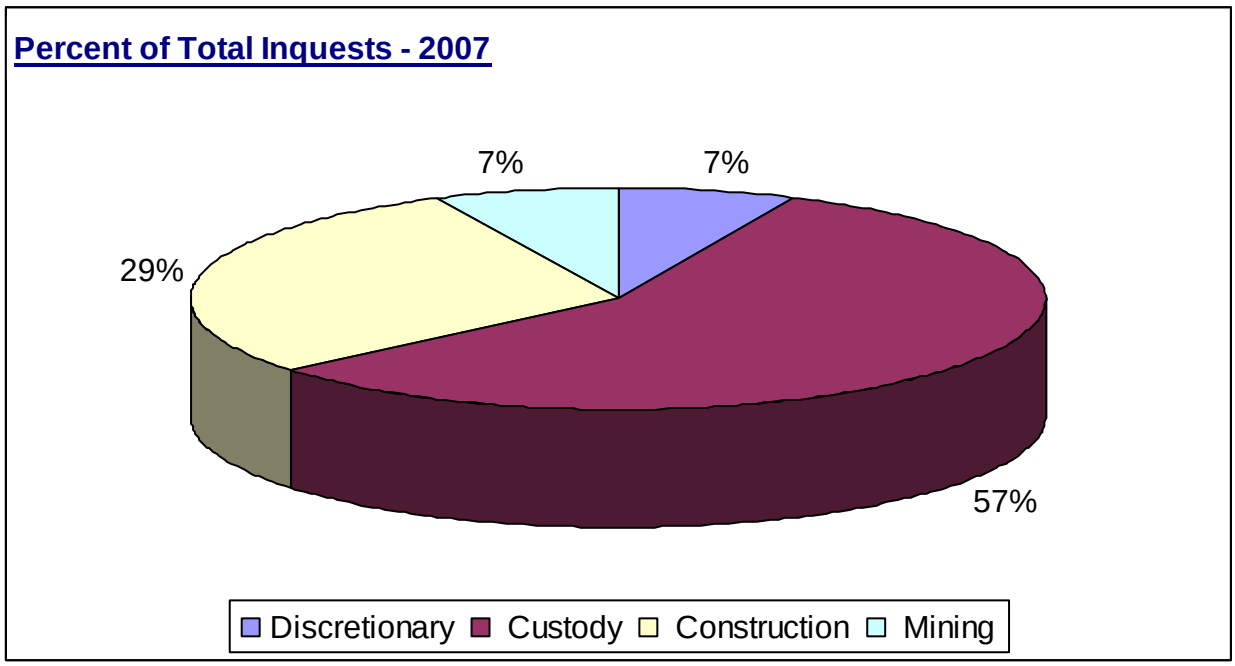
- 35% were implemented
- 8% would be implemented
- 9% had alternate responses implemented
- 3% would have alternate responses implemented
- 18% were under consideration
- 1% had unresolved issues
- 5% were rejected with no specific reason given
- 4% were rejected due to flaws
- 0% were rejected due to lack of resources
- 9% did not apply to the agency assigned
- 7% no response received
- 1% of the responses received could not be evaluated

Of the deaths in 2007 for which an inquest was held:

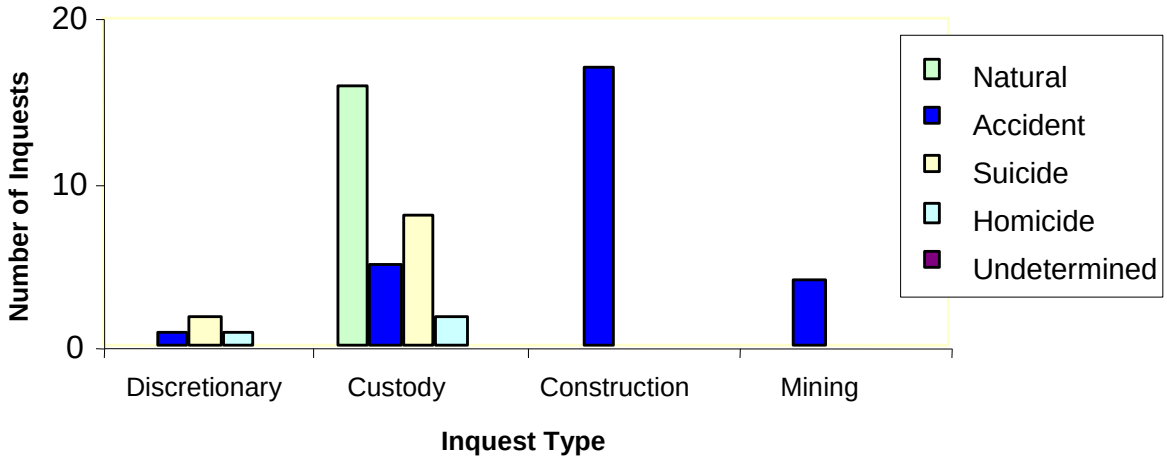
- 26% were natural
- 45% were accidental
- 17% were suicides
- 7% were homicides
- 5% were undetermined
- 100% of the construction inquests and mining inquests were accidental deaths

Summary of Inquests – Based on Inquest Type - 2005

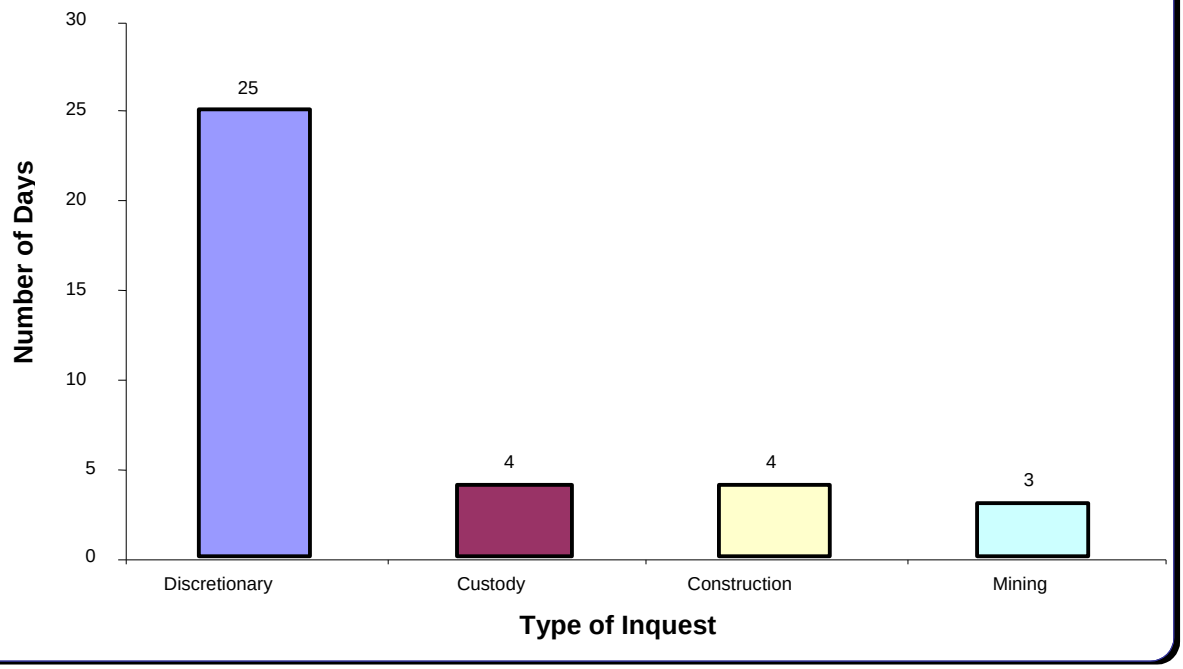
Type	Total # of Recs	% of Total Recs	Total # of Inquests	% of Total Inquests	Avg # of Recs per Inquest	Avg % Response Rate*	Total # of Days in Inquest	Avg # of Days in Inquest
Discretionary	101	28	4	7	25	65	101	25
Custody	125	34	35	57	4	85	136	4
Construction	105	30	16	29	6	77	57	4
Mining	30	8	4	7	8	56	11	3
Total	**361**	**100**	**59**	**100**	**11**	**71**	**305**	**9**



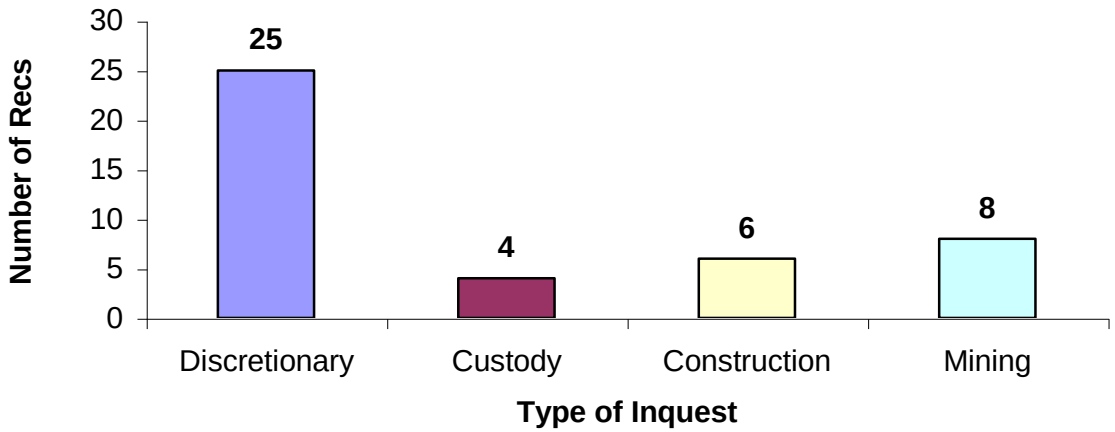
Comparison of Inquest Type and Manner of Death - 2007



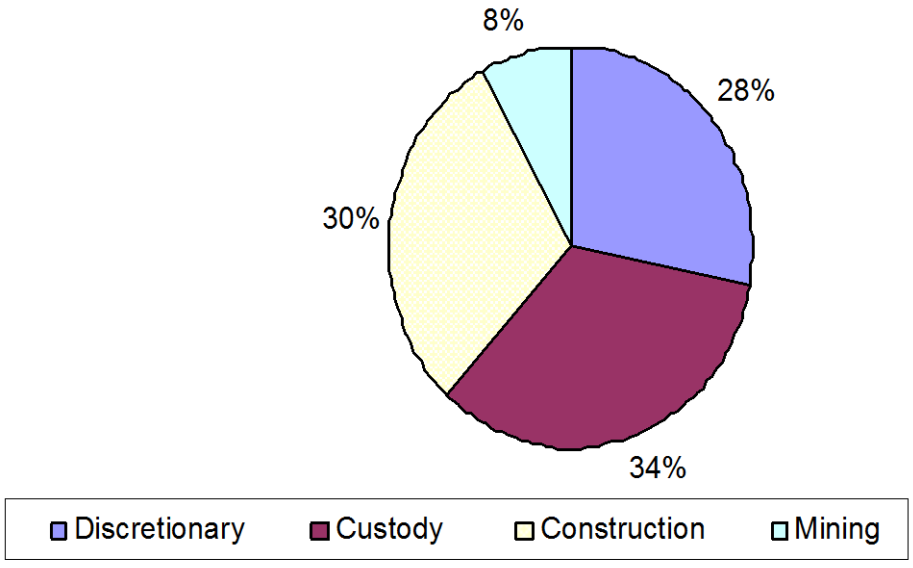
Average Number of Days per Inquest - 2007



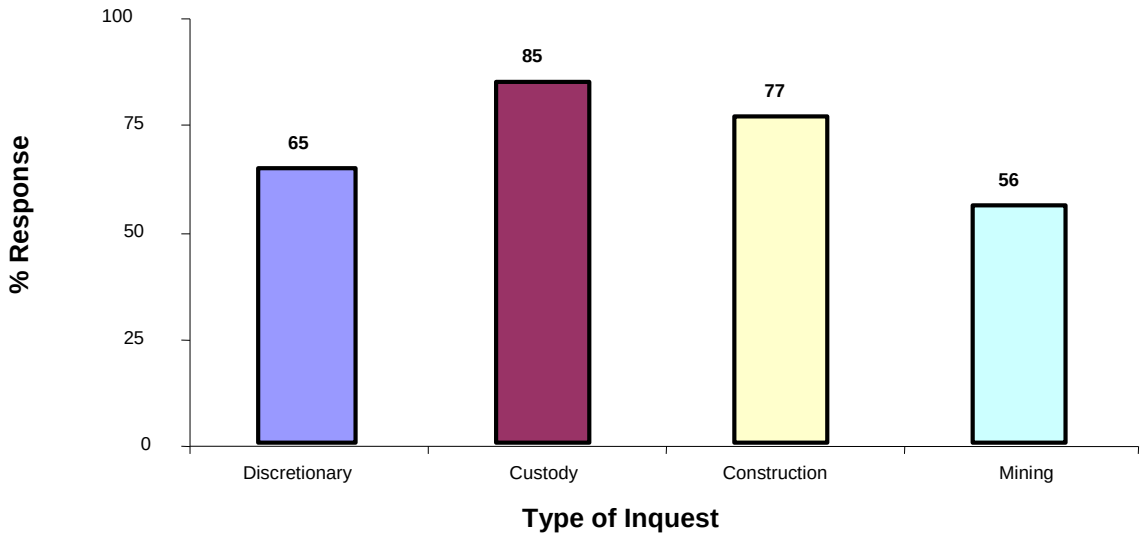
Average Number of Recommendations Per Inquest - 2007



% of Total Recommendations by Inquest Type - 2007



Average Percentage Response Rate by Inquest Type - 2007



Expert Death Review Committees

The Office of the Chief Coroner oversees six expert death review committees. The committees' membership includes individuals representing a diversity of multi-disciplinary fields, who provide advice and expertise for investigations and reviews conducted by the Office of the Chief Coroner. The committees include:

1) Domestic Violence Death Review Committee
2) Maternal and Perinatal Death Review Committee
3) Geriatric and Long Term Care Review Committee
4) Patient Safety Committee
5) Paediatric Death Review Committee
6) Deaths under Five Committee

The objectives of these committees are to:

- Offer an opinion on cause and manner of death
- Offer an opinion on the presence or absence of systemic issues, which may need further follow-up by the Investigating, Regional or Chief Coroner
- Offer expert opinion regarding the need to refer to other appropriate bodies for further investigation and/or action
- Stimulate educational activities through the recognition of systemic issues,
- Promote research where appropriate
- Undertake random or directed reviews when request by the Chair
- Advise the Chief Coroner of cases that may further public safety if examined through inquest process

The committees offer specialized knowledge and expertise in complex death investigations within specific subject matter areas. They utilize the services of knowledgeable and experienced individuals representing a variety of medical, social, legal and academic disciplines. They provide a thorough, comprehensive and diverse review of the circumstances and facts surrounding the death(s) but, do not make decisions regarding standards of care. They may identify issues relating to standards of care and may recommend that the Chief Coroner consider a referral to a regulatory body for further examination, if they deem it appropriate.

Members of expert death review committees receive modest compensation based upon attendance at committee meetings and preparation of death review reports. Committees meet 3-10 times per year, depending on the volume and urgency of cases to be reviewed.

The Office of the Chief Coroner has developed death investigation procedures that mandate expert death committee reviews for deaths in the following circumstances:

- All homicides that involve the death of a person, and/or his/her child(ren) committed by the person's partner or ex-partner from an intimate relationship, are reviewed by the Domestic Violence Death Review Committee;
- All deaths investigated by coroners involving children under the age of five are reviewed by the Deaths Under Five Committee;
- All deaths involving children who were receiving, or who had received, the services of a Children's Aid Society within 12 months of the death, are reviewed by the Paediatric Death Review Committee;
- All homicides occurring within long-term care facilities are reviewed by the Geriatric and Long-Term Care Review Committee;
- All women who die "during pregnancy and following pregnancy in circumstances that could reasonably be attributed to pregnancy are reviewed by the Maternal and Perinatal Death Review Committee.

The committees prepare reports that contain their findings on each case referred. In the course of the investigation, the findings may be shared with other interested parties in an effort to generate meaningful dialogue and systemic change, if appropriate. The findings may also be shared with the family of deceased individuals who are the subject of reviews.

The committees also prepare their own annual reports. Copies may be obtained by contacting the Office of the Chief Coroner.

Domestic Violence Death Review Committee

The Domestic Violence Death Review Committee (DVDRC) is a multi-disciplinary advisory committee of experts that was established in 2003 in response to recommendations made from two major inquests into the deaths of Arlene Mays/Randy Iles and Gillian and Ralph Hadley. The mandate of the DVDRC is to assist the Office of the Chief Coroner with the investigation and review of deaths involving domestic violence with a view to making recommendations aimed at preventing deaths in similar circumstances and reducing domestic violence in general.

The DVDRC consists of representatives with expertise in domestic violence from law enforcement, criminal justice system, health care and social services sectors and other public safety agencies and organizations. By conducting a thorough and detailed examination and analysis of facts within each case, the DVDRC strives to develop a comprehensive understanding of why domestic homicides occur and how they might be prevented. Information considered within this examination includes the history, circumstances and conduct of the abusers/perpetrators, the victims and their respective families. Community and systemic responses are examined to determine the primary risk factors and to identify possible points of intervention that could assist with the prevention of similar deaths in the future. The following chart identifies some of the statistical highlights identified in the reviews for the respective years:

	2007	2003 - 2007
Number of cases reviewed	15	62
Number of deaths reviewed	25	100
Risk Factors:		
Female victims	93%	94%
Couples pending or actual separation	73%	79%
History of domestic violence	73%	75%
Perpetrators - depression	47%	63%
Obsessive behaviour by perpetrator	73%	63%
Escalation of violence	53%	50%
Perpetrators – unemployed	47%	37%
Length of relationship 10 years or less	73%	61%
Legal or common-law relationship	73%	74%
7+ risk factors identified	67%	84%

Case Example

This case involved the homicide of a female victim who had been in a relatively short relationship with a male partner. Both were well educated, the victim being a physician and the perpetrator a senior policy advisor. The couple apparently met through an Internet dating service. The victim had been in a previous abusive relationship from which she had successfully extricated herself. The perpetrator had a history of abusing a previous girlfriend, and also had a serious drug abuse problem, including heavy use of cocaine. He was described as very jealous, possessive, and had a tendency to violence.

The victim became fearful for her safety as the perpetrator became more possessive and controlling. The perpetrator exhibited an obsessive preoccupation with the victim's whereabouts and attempting to control her life. The victim sought advice and assistance from professional colleagues and a confidential professional support service. Due to her professional status, she was reluctant to pursue some of the advice offered, out of fear of recognition/embarrassment.

Violent confrontations with the perpetrator escalated. The victim had been strangled by the perpetrator several times in the few months and weeks prior to her subsequent death. She was ultimately killed by the perpetrator in this manner. Two months after the victim's death, while being held in custody for psychiatric assessment, the perpetrator hanged himself.

Recommendation: It is recommended that all healthcare providers must be mindful of the dynamics of domestic violence and the potential for lethality. Where concerns may be raised for the patient's safety, an appropriate screening tool must be considered, as it may assist both the healthcare provider and the patient to better understand the lethality risks, and proactively plan appropriately for safety (i.e. calling the police, going to a shelter or safe place, meeting with a specialist in safety planning). If the patient is reluctant to take these steps on her own, she may need to be accompanied.

Rationale: In this case, the victim was a well-known professional woman and was reluctant to seek help from a public service where she might be identified by her colleagues and patients. The only service she felt comfortable reaching out to was an anonymous hot line for her profession. The screeners did an excellent job of referring her to local resources, but given the immediate danger the patient was in, she would have benefited from an in-depth lethality assessment on the phone and education on the warning signs and escalating risk factors that she was faced with. Better understanding of the danger she was in may have lead to

an increased ability on her part to take more proactive steps for her immediate safety. She was killed within two days of her phone call to the healthcare provider service.

Recommendation: There is a continuing need to better educate family members, friends, and colleagues who come into contact with victims and perpetrators of domestic violence about the dynamics of domestic violence and the need to take appropriate action with potential abusers, victims, and their children. In particular, this education has to include an awareness of the risk factors for potential lethality. This is particularly important when the couple is going through a separation or the individual is showing signs of depression or suicidal or homicidal thoughts. The risk increases even further if the perpetrator has an addiction problem.

Rationale: In this case, the victim disclosed to her friends and professional colleagues that her ex-boyfriend had made two attempts to strangle her to the point that she lost consciousness. It is not clear if the significance of these potentially lethal acts was fully appreciated by all concerned. The DVDRC recognizes that while it is critical to educate the public on warning signs and risk indicators that reflect increasing danger to the victim, (i.e. strangulation attempts/choking, marks and bruises on the neck), it is not sufficient to stop there. When a victim is ambivalent about contacting the police or a Violence Against Women (VAW) advocate, or appears unwilling or incapable of acting to protect herself, then others must consider acting on her behalf.

Recommendation: Given the high co-occurrence between addictions and domestic violence, we expand on previous recommendations to include more education for counsellors who work with clients with addiction problems who may be perpetrators of domestic violence. We recommend routine screening in every case and where there are indicators of domestic violence we recommend a thorough assessment of risk and risk management of the case including contact with the victim to engage in safety planning. We would not expect addiction counsellors to become experts in domestic violence work but we would recommend that they collaborate closely with the VAW sector in their community.

Rationale: In this case, both the victim and the perpetrator saw the primary problem as one of addiction. They both believed that if the addiction issue was resolved, then the perpetrator would no longer be controlling, jealous and abusive to the victim. Both sought help from a number of addiction services. There is no indication that either of them was screened for the presence of domestic violence.

Recommendation: It is recommended that police officers receive additional/ supplemental training, which focuses on the recognition that domestic violence does not always present itself in an obvious way, such as in a domestic violence assault, but may be imbedded in other types of criminal acts. Where domestic

violence is at the root of any criminal act, the investigation must be completed within the context and application of the domestic violence policies of the respective services. Victims may be reluctant to disclose violence in their relationship, and this requires a sensitive, but thorough intervention. Police must understand that reluctant victims may be at greater risk of continued violence and thereby are in greater need of proactive police response.

Rationale: In this case, two days prior to her murder, the victim made a 911 call to police to report a Break and Enter at her home. The victim identified her ex-boyfriend as the suspect and further indicated that he was violent. The victim also advised police that she feared retaliation as a result of calling the police. The responding police officers did not treat the occurrence as a domestic violence investigation, and simply submitted an information occurrence with no follow up or no effort to contact or investigate the suspect.

Maternal and Perinatal Death Review Committee

The Maternal and Perinatal Death Review Committee (MPDRC) of the Office of the Chief Coroner was formerly known as the Obstetrical Care Review Committee. The name of the committee was changed in 2004 to reflect an additional role within the Chief Coroner's Office based on recommendations of Health Canada's Special Report on Maternal Mortality and Severe Morbidity in Canada.

The mandate of the MPDRC is to provide assistance to coroners in their investigations of *all* deaths involving women who died during pregnancy and following pregnancy in circumstances that could reasonably be attributed to pregnancy. Stillbirths and perinatal deaths may be referred by a Regional Supervising Coroner to the committee for their opinion regarding the circumstances of the death(s).

The MPDRC includes representation from health care professionals including: midwives, obstetricians, maternal foetal medicine specialists, family physicians, pathologists, obstetrical nurses and paediatricians. The committee is chaired by a Regional Supervising Coroner.

The MPDRC produces an annual report that includes an overview of cases reviewed and recommendations made. The annual report is made available to health care professionals and the general public for the purpose of preventing similar deaths in the future.

	2007
Number of cases reviewed	29
Number of deaths reviewed	29
Number of recommendations generated	36
Number of maternal cases reviewed	15
Number of maternal cases reviewed for statistical purposes only	2
Number of perinatal deaths reviewed	12

Case Example

Cause of death

Peripartum anoxia from unknown cause.

History:

The mother of the deceased was a 37-year-old G_2P_1 with an estimated date of delivery of July 28, 2006. She had an uneventful antepartum course. Her lab

work and ultrasound were normal. She had an amniocentesis for late maternal age. She was hypothyroid on replacement therapy and has celiac disease.

She presented to the hospital at 1800 hours on July 31, 2006 in active labour. The cervix was noted to be 6-7 cm dilated. At 2030 hours, she was 9.5 cm dilated and had an ARM which produced clear fluid. She was fully dilated at 2100 hours. She pushed for 1 hour and 23 minutes during 1st and 2nd stage of labour. She had intermittent auscultation during 1st and 2nd stage. There are no notes relating to the 2nd stage of labour; the history was obtained solely from the attending physician's dictated final note, which indicates a pudendal block needing to be inserted for pain relief. The head was documented to be on the perineum for approximately 10 minutes with slow advancement. The baby was noted by the attending physician to deliver in an occiput anterior position and the nose and mouth were suctioned on the perineum. The baby rotated to a left occiput position. The attending physician commented on "mild shoulder dystocia" resolving with a McRoberts manoeuvre over five pushes. There was a loose nuchal cord which was slipped over the baby's head. The Obstetrician gave an approximate time of delivery of the body after head, of 45 seconds.

At the time of delivery, the female infant was apnoeic, pale and cyanotic. The cord was immediately clamped and divided and the baby moved to the infant station. The initial heart rate was 0 and the baby remained apnoeic. She was bagged with 100% oxygen and at 30 seconds, no heart rate was noted. Cardiac compressions were started at 2224 hours.

The infant was intubated at 2227 hours and epinephrine was given through the ET tube at 2230 hours, at approximately 7 minutes of age. Thirty seconds after the intubation, the heart rate was approximately 160 beats per minute. The Apgars were recorded as 0, 0 and 3 at 1, 5 and 10 minutes, with two points for heart rate and one point for pink colour. The baby had no spontaneous movement or respirations. The first gasp occurred at about 10 minutes, post intubation.

On the advice of the tertiary children's hospital Neonatal ICU, an umbilical catheter was placed and 30 cc's of D5W bolus was given. 10% dextrose infusion at 9 ccs per hour was started and Ampicillin 175 mg and Gentamicin 8.75 mg was given.

The initial chest x-ray showed the ET tube was in the right main stem bronchus. It was pulled back .5 cm and a follow-up x-ray showed it was above the carina. The oxygen saturation was at 100%. The infant had to be re-intubated due to an accidental extubation during x-ray examination.

The infant was bagged with 100% oxygen. The tertiary children's hospital team arrived on August 1 at 0120 hours. A notable cry was heard from the baby and

two medical staff with a laryngoscope found that the ET tube was not in place. The tube was removed and the infant was given ventilation with a bag and mask.

At 0145 hours, the infant was intubated through the nasal route with a 4.0 ETT. On auscultation, there was equal air entry on both sides and the oxygen saturation was between 96-100%. A request for x-ray was made.

At 0115 and 0225 hours, attempts at arterial sampling for blood gas were unsuccessful. An x-ray was done at 0215 hours and was subsequently reviewed at 0240 hours. The x-ray revealed that the endotracheal tube was at the clavicles and was therefore advanced 2 cm under view with a laryngoscope.

At 0250 hours, a capillary gas sample was obtained. The parents had been at bedside and were informed of the severity of the infant's illness. Depravation of oxygen and abnormal movements were mentioned. At 0330 hours, the infant was placed in an isolette and connected to a ventilator.

The infant was transported to the tertiary hospital by ambulance at 0345 hours and arrived at 0450 hours.

Blood gas at four hours of age showed pH of 7.27, CO_2 45, Bicarb 20 and base deficit -6.5.

The examination at children's hospital showed the infant's temperature to be 36.3 axillary. She was pale and unresponsive to stimulus. The sutures were overlapping and the eyes were opening, but there was no blinking. The pupils were not reactive to light.

Respirations revealed occasional gasp, but she was being ventilated and showed good bilateral air entry. The oxygen saturation was 99%. The pulse was 137 and the blood pressure was 70/52 with a mean of 58. The pulse was palpable, but it was felt to be weak. Skin, abdomen and genitalia were all normal.

Neurologically, the infant was hypotonic; her lips were noticed to be twitching with some mouth movements. Primary reflexes including the Moro, grasp and suck were all absent and she was still unresponsive to stimuli.

The infant was maintained on the ventilation and received 10% Dextrose infusion and plans were made to obtain blood work and a neurological assessment with a consultation and EEG.

The neonatal assessment showed that the infant was profoundly hypotonic, unresponsive to stimuli, had twitching of the lower lip and no observable papillary reaction. There was weak plantar response with upgoing toes and the papillary grasp was absent. Respirations were of the gasping nature and intermittent. No urine output was noted.

The Neonatologist discussed the grave prognosis with reference to cerebral palsy and poor cognitive outcome.

At 1500 hours, the infant was maintained on a ventilator with a rate of 40 versus 20/5 in room air with oxygen saturation of 100%. Some spontaneous movements were noted and there was staring, with no blinking of the eyes. The mean blood pressures remained at 38.

The infant remained profoundly hypotonic, lethargic with no spontaneous movements at 0500 hours. There were irregular respirations. The pupils were nonreactive.

At 0600 hours, suctioning of the airway produced no gag reflex and there was no swallowing noted. Again, there was no urine output. At 0730 hours, the infant remained stable on a ventilator. A nasogastric aspirate showed coffee ground secretions. An umbilical arterial line insertion was attempted.

At 0800 hours, the umbilical artery line insertion was unsuccessful, but blood was obtained for blood gases, electrolytes, blood lactate, ammonia, coagulation screen, glucose and blood culture. The one touch glucose was 4.9. Results of the other blood work was not available.

At 0910 hours, the infant was re-examined by the Neonatologist and an EEG was done.

There was an increase in systolic pressure and seizures were noted at 1015 hours. At 1130 hours, a urinary catheter was inserted as there was no urine output.

At 1140 hours, Lasix 4 mg was given and at 1210 hours a Neurologist assessed the infant and she was given 40 mg of Phenobarbitone.

At 1306 hours, a family conference was conducted with the Neonatologist, the Neurologist and a social worker. The family was advised that the EEG was markedly suppressed with rare bursts of 6 or 7 cycles per second activity over the occipital area.

An MRI was done at 1400 hours and an ultra sound at 1430 hours. At 1900 hours, the oxygen saturation was not registered and the baby had cyanotic mottled appearance. She was ventilated by hand using a bag and mask and further seizures were noted. A second dose of phenobarbitone was given. The results of the EEG and MRI, which showed poor grey and white matter differentiation, were discussed with the parents and palliative care was offered.

At 0130 hours, the infant was extubated and put on oxygen by mask. At 0245 hours, she was given IV Morphine for comfort since oral medications were felt to be inappropriate. There was no change in her neurological status except evidence of hypertonia.

At 0700 hours, further Morphine was given. She continued to have gasping respirations and oxygen saturation was at 92-95%. The heart rate remained at 160.

At 1305 hours, the urinary catheter was removed and the parents agreed to discontinuation of oxygen. The infant was pronounced dead at 1307 hours.

Post Mortem

The term infant weighed 4420 g with a length of 54 cm. The head measured 35 cm. There were no congenital abnormalities.

Discussion

The mother's antepartum course was uneventful. She was admitted in active labour and progressed to full dilatation in a timely fashion. She had a prolonged second stage of labour, ultimately pushing for 1 hour and 23 minutes, requiring a pudendal block for pain relief. The Obstetrician makes note of a prolonged time on the perineum and mild shoulder dystocia resolving over five pushes. There are no corroborating nursing notes detailing events in the second stage of labour. The nursing notes consist simply of a list of foetal heart rates with no comments. There were no gases drawn which would have assisted in understanding what occurred. The birth weight was 3800 g. In reviewing the chart, intermittent auscultation was undertaken which was apparently reassuring, but documentation could have been more complete. The second stage appeared more prolonged and difficult, ending in shoulder dystocia which could certainly contribute to the infant's depression at birth. There were no risk factors present in this instance to alert to this possibility other than the prolonged time on the perineum. It appears it was managed appropriately with McRoberts, according to the attending physician's notes. It is very unfortunate that no cord gases were drawn which could have assisted us in understanding what occurred.

The infant's foetal monitoring appeared to be satisfactory until the time of delivery. There was some concern with regards to her head being present on the perineum for 10 minutes and foetal recording was not available for 3 minutes prior to delivery. It is hard to assess the potential asphyxial insult during this time. However, the fact that the Apgar's were 0, 0 at 1 and 5 minutes and only 3 at 10 minutes, it is highly suggestive of anoxic damage.

There are no cord gases or other blood work available to support a diagnosis. The first capillary gas was only obtained at about four hours of age. However, her

neurological status was severely compromised very early on and this would certainly point to the likelihood of anoxia in the peripartum.

The infant was intubated without great difficulty and responded from the cardiovascular point of view to the epinephrine. The fact that the tube placement was somewhat suboptimal and she got extubated requiring re-intubation, is not thought to have contributed significantly to the outcome.

The question of having an endotracheal tube in the oesophagus is somewhat puzzling. Since she was heard to make sounds and the tip of the tube was not in the trachea, desaturation and possibly bradycardia would have been expected. From the record, it appears that she remains stable from the cardiovascular and respiratory point of view during the interval before the transport team arrived. It is quite likely that the extubation may have occurred later.

Recommendation: Obstetrical care providers are reminded of the importance of clear, complete documentation.

Recommendation: Obstetrical care providers are reminded of the importance of drawing cord gases at all deliveries.

With regard to neonatal management:

Recommendation: Securing the respiratory support is crucial and therefore, the endotracheal tube should be inserted through the nasal route and secured appropriately.

Recommendation: Chest x-rays should be done with two views for correct positioning of the endotracheal tube.

Recommendation: The end tidal CO_2 sensor would be a useful addition.

Recommendation: Cord gases and capillary gas from the baby should be obtained as soon as possible for a more complete assessment.

Geriatric and Long Term Care Committee

Originally formed in 1989, the Geriatric and Long Term Care Review Committee (GLTCRC) conducts independent reviews of deaths occurring in the elderly and in both acute care and long term care facilities in Ontario. The GLTCRC is chaired by a Regional Supervising Coroner and includes membership of health care professionals that are dieticians, nurses, family physicians, geriatricians, emergency room physicians, and coroners.

The Committee conducts independent paper reviews and prepares reports which may include recommendations to prevent future deaths in similar circumstances. Reports and recommendations are distributed to health care agencies, family members, other provincial, national and international jurisdictions, and to the public at large.

Recommendations generated by the Committee from 2005 to 2007 addressed concerns in the following areas:

- Medical and nursing management
- Communication and documentation
- The use of drugs in the elderly
- The admission/discharge/transfer process
- Consent for treatment and DNR and
- The Ministry of Health and Long-Term Care

	2005	2006	2007
Number of cases/deaths reviewed	28	27	17
Total Number of Recommendations	59	71	35

Case Example

Issue

Management of the elderly in the acute care setting

History

The deceased was a 77 year old man who lived independently at home and was fully functional. His past medical history included:

1. Hypertension controlled with Metoprolol Tartrate and Valsartan;
2. Coronary artery disease with a myocardial infarction (1995);
3. A history of smoking;

4. Psoriasis treated with Diprolex cream,
5. A right total hip replacement (1999) and
6. A left total hip replacement (2004).

On July 12, 2007, he presented to the emergency room of the general hospital complaining of hip pain. X-rays of his hip were reported to be "normal" and he was sent home.

On July 16, 2007, he returned to the emergency room with complaints of increasing hip pain for ten days, difficulty in ambulation, and decreased oral intake. His temperature was recorded at 37.0° C. Laboratory and imaging investigations were reported as:

1. White Blood Cell Count (WBC) – elevated at 20.5 with neutrophilia and bands;
2. Urea – elevated at 26.5;
3. Creatinine – elevated at 149;
4. Left hip x-ray – no change from post arthroplasty films;
5. Right hip x-ray – "evidence of significant polyethylene wear with some resorption of bone around the cement mantel and possibly some subsidence, indicating early loosening."

The consulting Orthopedic surgeon's note documented the presence of pain, more on the left than right, with movements of both hips and most painful on hip flexion. The man was admitted to the general hospital with a presumptive diagnosis of bilateral septic hip arthroplasties. Bone and labelled WBC scans were ordered. Hydromorphone Hydrochloride sc. was ordered for pain. His regular antihypertension medications were continued.

Cefazolin Sodium 1 gram iv q8h was ordered with the first dose to be given after blood cultures were drawn and a hip joint aspiration for culture was done.

During the first two days in hospital, the man was noted to be agitated, not eating, and asking to go home. He was unable to ambulate. Diapers were required due to incontinence. Clinically, he was suffering from a delirium. The "Braden Scale" skin risk management done by nursing staff at the time of admission concluded that he was at "low risk" for the development of skin breakdown." Daily pain control required 6 tablets of Acetaminophen 325 mg. with Codeine 30 mg. and subcutaneous Hydromorphone Hydrochloride 8-12 mg.

On July 18, 2007, the Infectious Diseases Specialist (IDS) noted that the Orthopedic surgeon was "planning to do an aspiration in short order." It would appear that the patient underwent an attempted hip joint aspiration, but the procedure was unsuccessful due to pain and patient agitation. The IDS suggested the potential organisms that could cause a possible septic hip

arthroplasty, including Staphaureus. It was recommended that the bone and WBC scans should be completed.

Antibiotic therapy was commenced at 0600 hours on July 19, 2007. There was no documentation on the medical record to indicate the joint aspiration was done. The man complained of shortness of breath. Following a chest x-ray, the diagnosis of a left lower lobe pneumonia was made. Laboratory investigations were done and reported:

1. WBC Count – elevated at 21.7;
2. Electrolytes – normal and
3. Creatinine – normal.

Oral Levofloxacin 500 mg. po. od. was started. That evening, nursing staff noted that the patient was confused and tachypneic. He was seen by the on-call internist who discontinued the Levofloxacin and ordered Moxifloxacin Hydrochloride 400 mg. po. od. The Hydromorphone Hydrochloride was also discontinued, presumably because of the ongoing agitation and confusion. The medical record indicated that during the first few days in hospital, the patient's awareness, cognitive status, and behaviour fluctuated. These symptoms are consistent with a delirium.

On July 20, 2007, a bone scan was done and revealed hyperemia of the soft tissues of the right thigh, but no increased vascularity in the region of the hips themselves. Delayed imaging showed slight increased uptake in the region of the right proximal femur and proximal left prosthetic stem. Neither of these findings was thought to be sufficient enough to suggest the presence of infection. Following a further review by the IDS, the Cefazolin Sodium was discontinued. From the documentation submitted for review, the Committee could not determine if the IDS felt the hips were not infected, or if it was felt that the Moxifloxacin Hydrochloride provided adequate coverage for potential organisms in a late onset prosthetic joint infection. A CT scan of the abdomen, pelvis, and hips was ordered as the IDS was concerned that there might be a possible psoas abscess. The man continued to be afebrile, but remained in significant pain, was immobile and incontinent, and developed skin redness over the coccyx. The delirium persisted.

On July 21, 2007, the attending physician met with the patient's family to discuss the possible diagnoses and the plan to conduct more tests. It was documented that the family wanted the patient to remain hospitalized as long as necessary. This was likely in reference to the patient's repeated requests to go home. The CT scan was completed that day and no psoas abscess or intraperitoneal inflammation was seen. Both hip areas were reported to be abnormal. Around the left hip, there were two collections of fluid: one superolateral to the left acetabulum and the second anterolateral to the proximal femur. Due to motion artefact, the radiologist could not determine the density of the fluid, but

commented that infection could not be ruled out. On the right side, there was a 5.3 cm. x 3.7 cm. complex collection anterolateral to the proximal femur, with a thick surrounding rind of tissue and complex appearing internal organs. The radiologist reported, "the complex pre-femoral collection on the right is suspicious for an abscess, given the clinical concern."

On July 22, 2007, the attending physician noted the CT findings and the abscess needed to be drained. The patient was to be seen by the Orthopedic surgeon. The findings and proposed course of action was discussed with the patient and his family. A repeat WBC count was reported at 21.9, with changes in the smear consistent with the sepsis. The following day, a consultation with the Orthopedic surgeon was formally written on the medical record.

On Julye 23, 2007, the labelled WBC scan was completed and reported, "no evidence for peri-prosthetic infection." The attending physician noted that the patient had been seen by the same Orthopedic surgeon who had assessed him in the emergency room. The attending physician documented, "? Aspiration ? Reconstruction." Following admission to hospital, the Orthopedic surgeon did not make any notation on the patient's medical record. Upon review of the medical records, the Committee could not determine what information, if any, had been communicated to the Orthopedic surgeon. Later that day, the IDS reassessed the patient and documented that he was not in extremis from hip pain. After a discussion with the Orthopedic surgeon, it was agreed that the microbiologic yield of an aspirate of the right hip might be compromised because of the ongoing antibiotic therapy for pneumonia.

The IDS documented that the treatment plan was to complete the course of Moxifloxacin Hydrochloride on July 29, 2007, then wait 48-72 hours, then aspirate the hip abscess. A notation was made on the medical record by the IDS indicating that if the hip was found to be infected, the patient would need the implant removed or a spacer inserted.

On July 23, 2007, the attending physician documented a discussion with the patient and his family regarding the possible need to remove the implants and the follow-up course of antibiotics and reconstruction.

On July 26, 2007, the attending physician noted that the patient was, "shaking ++", during the visit. The Committee noted that records indicate that the patient had remained afebrile throughout the hospitalization with the highest recorded temperature being 37.4° C. Laboratory investigations showed a mild hyponatremia of 134 and a WBC count of 12.3 with a neutrophilia.

On July 27, 2007, sustained release of Morphine Sulfate 15 mg. was ordered bid. for hip pain.

On July 29, 2007, the 10-day course of Moxifloxacin Hydrochloride was completed.

On July 30, 2007, the attending physician noted that the patient had developed a deep decubitus coccygeal cutaneous ulcer which resulted in him being seen by nursing wound care specialist. A new dressing regime was commenced as well as measures to prevent further skin breakdown. The dosage of sustained release Morphine Sulfate was increased to 30 mg. bid.

At 0505 hours on July 31, 2007, nursing staff found the patient without vital signs. Resuscitation efforts were unsuccessful and death was pronounced.

Postmortem Findings

Postmortem examination revealed:
1. A large 12 cm. x 9.5 cm. sacral ulceration;
2. Bilateral pulmonary congestion and edema with no evidence of pneumonia;
3. Severe triple vessel coronary artery disease with left ventricular hypertrophy and an old transmural inferior myocardial infarction;
4. A large abscess cavity in the left hip replacement site with approximately 100 ml of pinkish fluid present and extensive necrosis of muscle and connective tissue;
5. An area of abscess formation in the replacement site of the right hip with extensive necrosis of muscle and connective tissue;
6. Microscopic infiltrate with a portion of an abscess type wall identified with reactive fibrovascular proliferation, and
7. Neutrophilic infiltrates in the liver and spleen compatible with sepsis.

Bilateral hip cultures were positive for a light growth of Staph aureus sensitive to Cefazolin Sodium, Clindamycin, Cloxacillin, Tetracycline, and Tri-methorprim/Sulfamethoxazole.

The cause of death was recorded as sepsis from bilateral infected hip joint replacements in a man with severe atherosclerotic coronary artery disease.

Discussion

This 77 year old man died from sepsis related to bilateral infected prosthetic hip joints. Upon thorough review of the circumstances surrounding the death, the Committee provides the following comments and concerns:

Diagnosis and Treatment of a Prosthetic Joint Infection

Initially, the physicians appropriately suspected that the patient had infected hip joint prostheses and initiated a plan of diagnostic tests aimed at obtaining

radiologic and/or microbiologic confirmation of their significant clinical suspicion. Initial radiologic tests, including x-rays, bone scan and microbiologic tests, were either non-diagnostic or could not be obtained. Coincidentally, the man developed a pneumonia for which he was prescribed Moxifloxacin Hydrochloride, which was good coverage for Staph aureus and other likely organisms in a late (over 24 months post replacement) prosthetic joint infection.

On July 21, 2007, Day 6 of the hospitalization, the CT scan was completed and demonstrated the presence of probable bilateral periarticular hip abscesses. From this point onward, the Committee was puzzled by the diagnostic and management approach taken by the health care professionals. In particular, the Committee was uncertain as to:

What did the Infectious Diseases Specialist and Orthopedic surgeon think the cause of these fluid collections was, if not infection ?

Did they have an alternate differential diagnosis aside from a significant and aggressive prosthetic joint infection ?

In the Committee's opinion, infection would have been the most likely diagnosis given the acuity of the symptoms and the CT findings. A review of the literature [1,2] indicates that the treatment of prosthetic joint infection in the case of abscess formation and moderately or severely damaged soft tissue, must include antibiotics along with removal of the infected prosthesis(es).

Recommendation: Health care professionals should be reminded that disease presentation in the elderly is frequently atypical and may vary greatly from patient to patient. A subtle change in a patient's clinical status may well indicate that something serious is going on which may not be readily apparent. The underlying cause(s) of these atypical presentations may be missed if the investigator does not obtain an appropriate history, conduct a thorough examination, and judiciously utilize available laboratory and imaging resources.

Recommendation: Health care professionals should be reminded that changes in an elderly patient's clinical condition, including behavioural changes, may indicate the presence of a potentially serious medical illness such as a delirium. Assessment of these patients should, at a minimum, precipitate a comprehensive medical assessment including a review of the patient's past medical history and a critical review of the patient's medication profile looking for potentially treatable causes of the patient's deteriorating clinical condition.

Recommendation: Health care professionals and especially Orthopedic Surgeons and infectious disease specialists should be reminded that the treatment of prosthetic joint infections with abscess formation and moderately or

severely damaged soft tissue must include antibiotic therapy along with removal of the infected prosthesis. Failure to institute timely and aggressive intervention may result in long term complications including death.

Recommendation: Health care professionals should be reminded of the importance of keeping complete, comprehensive, and accurate progress notes regarding treatment decisions and assessments. Frequently, the Committee finds these notes to be absent, scanty, incomplete, irrelevant, inaccurate, and/or illegible. These notes should meaningfully reflect issues identified by all members of the health care team (including the family) and include the reason why certain treatments are/are not being done in relation to these issues.

Institutions need to develop quality assurance programs in order to determine their level of compliance with these programs and to correct any deficiencies where present.

Recommendation: Health care professionals should be reminded of the importance of accurately assessing the skin integrity of elderly, immobilized, ill residents in long term care facilities. Once the skin integrity has been compromised, the importance of developing a comprehensive treatment plan identifying the risk factors and therapeutic interventions cannot be overemphasized.

Recommendation: Health care professionals should be reminded that, although decubitus ulcers are commonly seen in the immobilized and ill elderly, they are **never** a normal consequence of disability and immobility. The potential for the development of serious infection, septicaemia, and death must always be remembered.

Recommendation: Health care professionals caring for the ill elderly should give consideration to the prescribing of pressure reducing mattresses for patients who require prolonged periods of immobilization.

Recommendation: Health care professionals should be reminded of the importance of communicating with patients, if competent and/or family members and/or substitute decision makers, the need for various treatment modalities and alternatives. Documenting the information exchange on the medical record should be mandatory.

References

1. N. Engl J. Med 204;351: 1645-54.
2. Toms, A. D.; Davidson, D.: masri, B. A.; Duncan, C. P. The management of peri-prosthetic infection in total joint arthroplasty. *J Bone Joint Surg (Br).* Volume 88-B(2), February 2006, pp 149-155.

Patient Safety Committee

The Patient Safety Review Committee is comprised of representatives of various medical specialties including the following areas: death investigation, nursing, primary care, medication safety, quality/risk management, physician/patient safety and safety systems.

This committee is advisory to the Chief Coroner and may make recommendations to the Chief Coroner through the Chairperson. In all cases, any action/recommendation proposed by the committee will be discussed with the relevant Regional Supervising Coroner and the Regional Supervising Coroner will communicate the findings and subsequent recommendations with appropriate agencies and organizations.

Cases may be referred to the committee through the Regional Supervising Coroner, when/if:

- there is an identified trend in the prevalence of deaths in certain circumstances
- there are concerns by the family or investigating coroner relating to the quality of care or provision of services
- the nature and complexity of the case requires subject-matter expertise
- there are potential public safety issues that can best be explored with the assistance of experts
- a multi-disciplinary review is necessary to complete a coroner's investigation (i.e. answer the five questions) and where such a review would likely yield recommendations which may prevent future similar deaths or improve public safety

The mandate of the committee is to:

- Provide expert opinion about the cause and manner of death in health care related cases where system-based errors appear to be a major factor
- Assist coroners to improve the investigation of deaths within, or arising from, the healthcare system in which systems-based errors appear to have occurred
- To stimulate educational activities for professionals through identification of systemic problems, referral to appropriate agencies for action, collaboration with professional regulatory bodies and the dissemination of an annual report
- To provide expert evidence at inquests
- To do, or promote, research
- To undertake random or directed reviews

Within the context of this mandate, the word 'error' does not imply blame or responsibility on the part of any individual or organization. For the purpose of the review by this committee, 'error' is defined as a system design characteristic that

either permits unintended adverse events to occur (latent error) or does not detect deviations from the intended path of care (active error). System design would include not only the design of the care process, but also the management of access to care (e.g. waiting lists). The presence of such errors does not mean that an individual or organization should be assigned blame or responsibility for an unintended outcome.

Structure of Reviews

The full review of a case requires the use of root cause analysis methods. This would ordinarily require that a team of analysts and investigators to attend the site of the death, catalogue and analyze the scene, utilize a series of triggering questions, interview those involved, pose follow-up questions and generate recommendations aimed at minimizing the likelihood that a similar event would reoccur.

Reviewers are usually limited to a review of the health record, the Coroner's Investigation Statement, the Report of Post-Mortem (if performed), information supplied by other investigators and information supplied by the health care institution.

The approach taken by the reviewers generally conforms to the following:

- Review of material provided by the Regional Supervising Coroner
- MedLine or literature search using terms relevant to the review
- A Root Cause Analysis Framework, such as that of the Veteran's Administration, is used to develop a series of triggering questions that are used to help identify system issues surrounding each case
- Further information is sought from the Regional Supervising Coroner, where necessary

Root Cause Analysis Framework

Triggering Questions:

- Were issues related to patient assessment a factor? Why?
- Were issues related to staff training or staff competency a factor? Why?
- Was equipment involved in this event in any way? Why?
- Was the work environment a factor in this event? Why?
- Was the lack of information (or misinterpretation of information) a factor in this event? Why?
- Was communication a factor in this event? Why?
- Were appropriate rules/policies/procedures—or the lack thereof—a factor in this event? Why?

- Was the failure of a barrier—designed to protect the patient, staff, equipment, or environment, a factor in this event? Why?
- Were personnel or personal issues a factor in this event? Why?

Based on these triggering questions, follow up questions are posed in the following areas:

- Human Factors: Communication
- Human Factors: Fatigue
- Environment and Equipment
- Rules/Policies
- Barriers

Through the use of triggering questions, follow up questions, and case review, the committee attempts to identify relevant issues contributing to the outcomes of each case.

Cases Reviewed in 2007

In 2007, the Patient Safety Review Committee reviewed 21 cases. This rise in cases is attributed to improved recognition of cases where systemic safety issues may exist. It is not the view of the Committee that this rise in cases represents an increasing number of incidents.

As in past years, the committee has taken note of trends and findings that are represented in more than one case that has been reviewed. In order of frequency, these are:

- Issues with preoperative assessment of patients who are at higher risk for anesthesia
- Adverse reactions to medication including to novel psychiatric agents, opiates and antithrombotic agents
- Placement of admitted patients in areas where they would not normally be cared for. This is an increasingly difficult issue in very tightly constrained inpatient settings
- Communication between physicians and referral of complex patients within health regions
- Physical restraint of the elderly
- Physical assessment of psychiatric patients
- Lack of thromboprophylaxis where indicated
- Issues with family communication in a complex palliative care environment

Sample Recommendations:

- "M rails" should not be used on hospital beds.
- Institutions that use "M rails" should ensure that their staff members are educated and oriented to their installation and reattachment.
- The team at the institution should review the management of traumatic esophageal perforation. There are points to be learned from this case that could inform the development of a management algorithm. This is an uncommon problem that can be a complex issue with some specific nuances that need to be addressed. Most of the issues will not be addressed by Level 1 randomized controlled trials, making it difficult to develop a clinical practice guideline.
- There should be a process for the admission and discharge of very ill patients from within the region. This is especially important for patients with complex problems that are best managed in the tertiary or quaternary center. Such a process should address, but not be limited to, the following issues:
    - Urgent vs. Non-urgent transport
    - Method of contact into the tertiary/quaternary center from outside
    - Responsibilities of sending receiving parties
    - Handling of urgent referrals when resource limitations exist
    - Communication of critical information for discharge/transfer
    - Consistent chain of command, delegation of authority
- The Committee believes that this case represents an example of the need to avoid reliance on one team member in complex systems. Cross-checking of other team members is a critical component of team function. Also, in highly automated systems, perhaps paradoxically, there is a greater likelihood that a critical malfunction or error will go undetected until an adverse event occurs.
- The Committee recommends that this incident be drawn to the attention of the Ontario Hospital Association so as to ensure other hospitals are aware of the potential risk.
- Mental health professionals, e.g. the Canadian Psychiatric Association, should give consideration to the development of guidelines for the assessment and surveillance of cardiac side effects in patients who are prescribed novel antipsychotic medications, such as olanzapine and clozapine. Such guidelines should also refer to potential drug-drug interactions when these medications are used.

Publications:

Also, the Committee published accounts of some of the cases it reviewed, after all identifying details were removed to protect the privacy of those involved. The intent of these publications is to educate health providers, with a view to avoiding and/or preventing deaths in similar circumstances in the future.

Selected publications included the Communiqué of the Ontario Hospital Association, and the College of Physicians and Surgeons of Ontario Dialogue.

Case Example

This case review involves the death of a man in his sixties who apparently was initiated on transdermal fentanyl (75 mcg/hour) in a hospital emergency department (ED) with subsequent titration 3 days later by his family physician to 125 mcg/hour for sciatic pain.

Summary of the Case

This man had a medical history of sciatica, COPD and other related respiratory conditions. The patient had received opioid analgesics over a number of years. This was limited to Tylenol #3 for various pain complaints (post-operatively, shoulder injury, left hip pain). No opioids are noted to have been prescribed thereafter until several months before his death. At that time, the patient was prescribed Tylenol #3, 100 tablets, indication unknown. (Coroner's record indicates 61 tablets were left.)

About two and half weeks before death, the family physician notes indicated that the patient was unable to tolerate MS Contin due to rash and itching. (The dose prescribed, the quantity, the date and the indication are unknown; there is a gap in the available community pharmacy medication records.) The medication list provided by the patient's wife for an ED visit for shortness of breath two days later concurs that this medication was stopped and no other opioids are listed.

About 11 days later, the patient was seen by his family physician for "recurrence of his sciatica" and severe uncontrolled pain with use of Tylenol #4. A new prescription for hydromorphone 2 mg tablets 1-2 q4h prn was provided and the patient was to be booked for CT of his spine.

Approximately one week before his death, the patient presented to the ED via ambulance for severe back pain. He was ordered and administered Toradol 30 mg IV and diagnosed with sciatica. Follow-up plan from the ED record indicates "fentanyl patch", although no written order was recorded and administration of the patch was not verified in the documents provided. The Coroner's records indicate that 75 mcg/hour of transdermal fentanyl was likely initiated in the ED. The patient was discharged home at 0935 hours. Later the same day, at 1845 hours, the patient returned to the ED with "low back pain". The ED physician's notes indicated the need for CT scan to rule out malignant source for current pain over last "3/52" or 3 weeks. His medications were noted at this time to be "hydromorphone 2-4mg q4h" and "duragesic 75 mcg patch)". He was administered Toradol 60 mg, instructed "may take his pain meds" and discharged home at 2145 hours.

Two days before death, the patient was seen by his family physician, who increased the transdermal fentanyl by 50 mcg/hour to 125 mcg/hour. In addition, hydromorphone was to be continued for breakthrough pain. The community pharmacy medication record indicates that ten transdermal fentanyl 25 mcg/hour and ten 100 mcg/hour patches were dispensed.

On the following day, he was seen again by the family physician. A note indicates he was physically examined and his pain had improved.

The next morning, the patient's wife found him unresponsive and called emergency medical services (EMS). EMS arrived and found patient VSA. BCLS and automated electronic device were used by EMS. The patient was transferred to the ED with continued CPR. Despite ACLS in ED, resuscitation efforts were unsuccessful.

Follow-up investigation by the coroner's office indicates the cause of death as fentanyl toxicity.

Key Issues

This review is limited to the aforementioned records. No interviews and follow up investigation were conducted. There is important information that is unavailable for this review that could lead to contributory factors, additional root causes and incidental findings.

There are two key issues that should be addressed:

1. Patient was initiated on transdermal fentanyl 75 mcg/hour.

If the patient received transdermal fentanyl 75 mcg/hour in the ED, this is a critical turning point as it led the family physician to believe that the initial prescription of 75 mcg/hour transdermal fentanyl was appropriate. The broader issue is then to understand what failures could have occurred in the medication use process that led the patient to be initiated on transdermal fentanyl at a dose of 75 mcg/hour.

Related to this issue is the absence of documentation of a written order which suggested a possibility of a verbal order, which is mentioned in the coroner's documents reviewed. (The possibility that the transdermal fentanyl was prescribed and/or received elsewhere could not be ruled out as the ED hospital narcotic records for the dayshift are not part of the documents received for review.) There appears to be three possible events that potentially could have occurred. They are:

- The ED physician intended for the patient to be initiated on transdermal fentanyl with a dose of 75 mcg/hour

- The ED physician intended for the patient to be initiated on transdermal fentanyl but at a lower dose, such as 25 mcg/hour due to:
    i. The nurse believing 75 mcg/hour was ordered, or
    ii. The nurse correctly received the order of transdermal fentanyl 25 mcg/hour, but failures occurred in the selection or administration processes
- The ED physician intended for the patient to be given fentanyl 75 mcg intravenously, but the patient received a 75 mcg/hour transdermal fentanyl dose

2. The patient was prescribed an increase (66%) of the transdermal fentanyl to 125 mcg/hour by his family physician 3 days later.

In addition to the fentanyl 75 mcg/hr patch, the family physician added another 50 mcg/hr patch. (According to the product monograph, it may take up to 6 days before a steady state level of fentanyl is reached.)

It is also unknown if the family physician reassessed the treatment plan of transdermal fentanyl or independently verified the initiating dose of 75 mcg/hour. The family physician had an opportunity to mitigate harm due to an understanding of the patient's medication history, including history of opioid use (saw patient regularly and as recently as a week before his death.)

Root Cause Analysis

Triggering Questions

1. Were issues related to patient assessment factor in this situation? Yes
2. Were issues related to staff training or staff competency a factor in this event? Yes
3. Was equipment involved in this event in any way? No
4. Was the work environment a factor in this event? Insufficient information to determine.
5. Was the lack of information (or misinterpretation of information) a factor in this event? Yes
6. Was communication a factor in this event? Yes
7. Were appropriate rules/policies/procedures – or lack thereof- a factor in this event? Yes
8. Was the failure of a barrier-designed to protect the patient, staff, equipment, or environment-a factor in this event? Yes
9. Were personnel or personal issues a factor in this event? Yes

Based upon these triggering questions, the following areas of focus are identified:

Human Factors Communication

- The EMS medication history record is incomplete. Medications are listed as Tylenol #4 and hydromorphone 2mg; frequency, last dose received and duration of use are not included.
- The ED record does not indicate that the patient was ordered or received a fentanyl patch.
- There is insufficient documentation on ED records to determine chronic opioid use and opioid tolerance. It is unclear what information was used to assess opioid tolerance before commencing transdermal fentanyl.
- The ED record has no medication history documented. It refers to "see list." This likely refers to a copy of the community pharmacy medication record, but this is also incomplete for the purpose of determining actual daily opioid use and assessing opioid tolerance.
- No other supplementary forms are noted that prompt a complete list for the medication history (I.e. drug, dose, frequency, last dose and length of time on medication) with any ED visit.
- There is no medical history documented for the patient's ED visit on six days before death when the patient received transdermal fentanyl. It is unknown if this information was otherwise known (i.e. patient's history of significant lung disease.)
- It is unknown what information and details were available to the ED staff when the patient was initiated on transdermal fentanyl 75 mcg/hour and to the family physician when patient was increased approximately 3 days later to 125 mcg/hour. (The family physician records do not indicate receipt of any information/communication directly from the hospital regarding the patient's ED visits.)
- The prescription to increase the transdermal fentanyl to 125 mcg/ hour is incomplete. It is unknown if the physician was contacted by the community pharmacist to clarify or if the conversion calculation was double checked.
- It is unclear how either the ED physician or family physician calculated opioid equivalency and thus the transdermal fentanyl dose. It is unknown what information either physician accessed to assist in the prescribing process (or what they had available to them.)
- It is not known if the Health Canada alert was effectively disseminated and received by the physicians (or other hospital staff) after the deaths of two teenagers who were NOT opioid tolerant and had been prescribed transdermal fentanyl for acute pain. In addition, numerous ISMP Medication Safety Alerts have been issued regarding transdermal fentanyl. It is unknown if these were available or read by ED staff and the family physicians.

Human Factors Training

- Transdermal fentanyl appears to have been prescribed for acute pain or acute on chronic pain (sciatica). Transdermal fentanyl is not indicated for the treatment of acute pain. *"Duragesic is indicated for management of persistent, moderate to severe chronic pain that: 1) requires continuous, around-the-clock opioid administration for an extended period of time, and 2) cannot be managed by other means such as non-steroidal analgesics, opioid combination products, or immediate-release opioids."*

Rules / Policies / Procedures

- It is unknown what information was readily available to front-line staff (policies/guidelines/patient teaching requirements) regarding the prescribing and administration of transdermal fentanyl to an ED patient.
- It is unknown what the monitoring guidelines are in place after the administration of any opioid in the ED or what information is provided to the patient upon discharge.

Barriers

- It is unknown if transdermal fentanyl is available in the ED narcotics cupboard or if there are protective barriers in place when an order is written (i.e. pharmacist order review).
- The family physician had the opportunity to reassess the treatment plan of using fentanyl and the high dose initiated 3 days prior in the ED.
- The community pharmacist had the opportunity to check the appropriateness of the patient receiving the patch and the dose. It is unknown if a computerized warning exists in the community pharmacy information system or, what the standard checking protocol is for a first time transdermal fentanyl dose that is greater than 25 mcg/hour, particularly as the medication records did not indicate dispensing consistent with transdermal 125 mcg/hour. (It is unknown if there is another community pharmacy in the area that the patient may have used).

Root Causes

Causal Statements

1. The prescribing of transdermal fentanyl for acute pain episode increased the likelihood that the pain would NOT be appropriately managed and increased the potential for ensuing fentanyl toxicity.

2. The incomplete opioid medication history in the ED increased the likelihood that an inappropriate dose of transdermal fentanyl would be prescribed, leading to fentanyl toxicity.

3. An additional significant increase of the fentanyl dose (66%) after only a three-day initiation in a patient who was not fully opioid tolerant increased the likelihood of fentanyl toxicity.

4. The lack of a complete documented medical history (including the patient's significant lung disease) in the ED, decreased the likelihood that practitioners involved in the care of the patient would be aware of critical information when assessing the appropriateness of transdermal fentanyl initiation, dose selection and the potential for toxicity.

5. The lack of prompts for a complete medication history on the ED record forms increased the likelihood of incomplete collection and communication of information, leading to inappropriate initiation of transdermal fentanyl.

6. The use of an equianalgesic chart in the product monograph that includes single dose and chronic dose equivalency for morphine increased the likelihood of misinterpretation of information (use of single dose for conversion) and the potential for an inappropriate dose to be prescribed, leading to fentanyl toxicity.

7. The variability in the way information is displayed for interpretation in the conversions chart (T-chart requires no calculations) versus the equianalgesic chart (requires multiple calculations and provides no directions) in the product monograph increased the likelihood of confusion in prescribing, and verification processes, possibly leading to prescribing and administration of an incorrect dose of transdermal fentanyl (on initiation and titration.)

8. Information indicating that opioids had been dispensed from a community pharmacy without documentation of actual history of recent opioid use increased the likelihood that health care practitioners would work from the premise that the patient was opioid tolerant rather than opioid naïve, leading to inappropriate prescribing and administration of transdermal fentanyl.

9. The patient's continued complaints of pain on follow-up with the family physician decreased the likelihood that impending fentanyl toxicity would be identified by the family physician, leading to an inappropriate dose increase and ensuing fentanyl toxicity.

Recommendations

Hospital(s):

1. Transdermal fentanyl should not be available in ED stock (or night cupboard.) If required for admitted patients in ED, transdermal fentanyl should only be provided from the pharmacy one dose at a time (i.e., q3

days) and only after a pharmacist review. (Fentanyl patch is never required urgently or in an emergency.)

2. Review and revise ED forms to provide appropriate prompts for practitioners to write a complete medication history (drug, dose, frequency and last dose.)

3. Review and revise ED forms to provide sufficient space for prescribers to write medication orders and for practitioners to document their administration.

4. Enhance communication between the hospital and family physicians. Consider providing a copy of the ED record to the family physician directly or to the patient.

Pharmaceutical Manufacturers of Transdermal Fentanyl:

5. Financially support the implementation of a 24-hour telephone hotline for health care practitioners to access for questions or assistance in the management of transdermal fentanyl (and other opioids).

6. Include a checklist for initiation and titration of transdermal fentanyl in the product monograph, all product packages and on an easily accessed web-site (similar principle to a checklist a pilot would use prior to take-off.) Alternatively, an algorithm would be helpful.

7. Review and revise the equianalgesic charts provided for transdermal fentanyl to highlight the reference to the chronic dose equianalgesic potency. The chronic dose conversion factor for morphine should be prominent in the eqianalgesic potency table in the transdermal fentanyl product monograph – transdermal fentanyl is only indicated in management of chronic pain and in opioid tolerant patients.

8. Human factors engineering expertise is recommended to enhance the ease of use of the equianalgesic chart for the purpose of conversion to oral morphine equivalence and to address the need to reduce the number of calculation steps (i.e., potentially following a T-chart format as provided to convert oral morphine dose to transdermal fentanyl dose), and to ultimately make the chart intuitive (i.e., reduce the level of training needed to use the chart).

9. Include additional information in the transdermal fentanyl product monograph to assist practitioners to assess opioid tolerance.

Pharmacy Software Vendors

10. Implement computerized alerts in pharmacy information systems for any new order or titration order for transdermal fentanyl that is greater than 25 mcg/hour, to prompt pharmacists to confirm the appropriateness of the

fentanyl patch order (i.e. for new prescriptions, whether the patient is opioid tolerant,etc.).
[NOTE: Other automated systems such as computerized order entry should at minimum have alerts for prescribers.]

Office of the Chief Coroner for Ontario

11. Consider sharing this case widely with healthcare professionals for the purposes of learning and preventing a recurrence.
(Note: This case has been published and used for education in a number of forums.)

The Paediatric Death Review Committee and The Deaths Under Five Committee

The mandate of both committees is to assist in the investigation and to provide advice to the Chief Coroner regarding the cause and manner of death in paediatric fatalities. In addition, the medical and child welfare death reviews conducted by the Paediatric Death Review Committee (PDRC) may provide opportunities for recommendations directed toward the avoidance of death in similar circumstances in the future.

The committees track and report on the trends, risk factors, and patterns identified by the reviews, in the interest of public safety and prevention.

It is important to understand that these review committees, while identifying causes of death and systemic issues which may have been contributory to deaths, are prohibited from taking on advocacy positions, developing guidelines, or implementing programs for the prevention of death. When informed by the Chief Coroner of identified trends, these tasks should be properly undertaken by non-governmental agencies, ministries of government, representative organizations or advocacy groups.

In addition to a Deputy Chief Coroner and a Regional Supervising Coroner, the committee membership includes representatives from multiple disciplines, including paediatricians, pathologists, police, crown attorney's office and child welfare experts. Other individuals with specific expertise and/or case knowledge may be invited to committee meetings on a case-by-case basis as the need arises at the discretion of the Chair, and with advice from members of the committee.

Referrals to the Committee

1. Regional Supervising Coroners notify the Chair of the Committee of all relevant paediatric deaths.

2. Upon completion of the initial investigation, the respective Regional Supervising Coroner refers cases, in writing, to the Paediatric Death Review Committee/ Deaths Under Five Committee.

3. Upon receipt of a case referred to the Committee, the Executive Officers coordinate and examine the documentation in relation to the case. The Executive Officers and the Chair will subsequently disseminate the case to members for review or make the decision not to proceed with a full case review. Items reviewed by the PDRC include the Coroner's Investigation Statement, autopsy report, toxicology report, ancillary reports, police report, child welfare and medical files.

Case Reviews

The Deaths Under Five Committee (DU5C) reviews all deaths of children under five years of age investigated by a coroner in Ontario, assists in the classification of cause and manner of death, and may refer the case for further review to the PDRC, as required. The DU5C meets approximately 6 times per year.

The PDRC reviews medically complex deaths where the cause and/or manner of death may be in question, or where there are concerns regarding medical care. The Committee may also review selected cases where concerns are raised by family members or caregivers. All cases where the deceased child's family had an open file with a Children's Aid Society (CAS) at the time of death, or within the preceding 12 months, are reviewed, as per a Joint Directive between the Office of the Chief Coroner and the Ministry of Children and Youth Services. The PDRC meets 10 times per year, monthly from September to June.

The DU5C and PDRC review a large number of cases annually. The intake, preparation and review of these cases are labour intensive.

PDRC

In 2007, the PDRC reviewed a total of 91 cases. Seventy three of those cases had Children's Aid Society involvement with the child prior to their death. The remaining 18 cases were medically complex deaths of children with no prior CAS involvement.

PDRC: Medical and CAS Case Reviews **2006 & 2007**

	2006		2007	
Manner of Death	**Medical**	**CAS**	**Medical**	**CAS**
Natural	16	18	17	10
Accident	1	13	0	23
Homicide	3	7	0	10
Suicide	0	9	1	8
Undetermined	3	9	0	15
Ongoing Investigation		*7*		*7*
Total Case Reviews:	**23**	**63**	**18**	**73**

Identified Themes

Since its inception in 1991, the PDRC has compiled a number of common themes that have recurred in the review of children's deaths. Reviews echo the findings of an increasing volume of literature on errors in medicine, which suggests that tragedies rarely result from a single fatal error or flaw and are more

likely to arise from a series of latent flaws in both systems and in performance. The occurrence of multiple imperfections is frequently synergistic.

The PDRC reviewed 18 medical cases in 2007 and many of these themes continue to recur. The preeminent theme revealed in 2007 was clearly, "failure to record or review ***vital signs*** particularly blood pressure".
9 (50%) of 18 cases, were determined to exhibit issues of vital sign recording and/or analysis.

"Refusal to *accept alternative explanations* after the event" or the refusal to initiate a differential diagnosis was the second most prominent theme, occurring in 5 (28%) of the 18 cases.

Rounding out the top three themes for 2007, 3 (17%) of the 18 cases correlated with, "where lab tests are ordered, particularly in an emergency department, it is essential that the results of these tests be known *before a decision is made regarding further treatment.*

PDRC Medical Case Example

History

A 17 year-old boy presented to a community hospital emergency department with a complaint of constipation and feeling unwell for 4 days. His temperature was 35.2 C, pulse 150, blood pressure 83/49. He was given a bolus of saline, and an enema for constipation with good results. Blood work showed pancytopenia, with a hemoglobin of 69, platelets of 24, and a white blood cell count of 0.5. Referral to a tertiary care centre was made and the emergency physician completed a Form 1 under the Mental Health Act to compel the patient to comply with the treatment plan. He was transported in an ambulance from the community hospital some 6 hours after arrival to the tertiary care centre. Upon arrival, he was noted to be hemodynamically unstable with an altered level of consciousness. He was intubated, given steroids, antibiotics and inotropes (isotopes) before expiring, approximately 5 hours after his arrival.

Cause of death

Septic shock due to E. coli sepsis.

Manner

Natural

Themes

1. His septic shock status appears to have not been appreciated by the emergency room staff despite his vital signs.
2. The pancytopenia was not treated once discovered.
3. He was transported in the ambulance with basic life support only. This suggests an under appreciation for the degree of his illness. Critical care paramedics were not utilized for the transport.
4. Once he arrived at the tertiary care centre, he was moribund, severely decompensated and could not be resuscitated.

Recommendation: The community hospital should conduct an internal Quality of Care Review of this case.

Recommendation: The Quality of Care Review should consider the following issues:

1. Vital signs which may indicate critical illness and incipient death.
2. The signs and symptoms of septic shock.
3. The incorporation of vital signs into CTAS scoring by triage nurses.
4. Appropriate nursing and physician actions based on the CTAS scores.
5. Pancytopenia and its complications for provision of enemas as a treatment option.
6. The indications to use a Form 1 for refusal of treatment or care.

Recommendation: The community hospital should share its recommendations, including plans for implementation with the Regional Supervising Coroner.

PDRC CAS Case Reviews

76 deaths reported to the PDRC by a CAS in 2007 underwent a screening review and it was determined that full committee reviews and reports were unnecessary in 36 of them. These 36 cases will not receive detailed reviews because it was apparent that a CAS or medical intervention could not have prevented the death. Examples would include cases where the child was medically fragile and the death was not sudden or unexpected or cases where the CAS only became involved as a result of the incident that led to the child's death. 40 of the 76 deaths from 2007 will be sent to the committee for future full reviews and reports, potentially with recommendations.

In 2007, the PDRC conducted in-depth reviews of 37 deaths of children whose families had involvement with a Children's Aid Society (CAS) within the 12 months preceding the death. One incident, a homicide, involved the deaths of 3 children; therefore 35 reports with recommendations were issued.

Key Messages:

- Natural causes are the most common reason that children die.
- Many child deaths are preventable; child death reviews are about understanding and learning from the past to prevent similar events in the future.
- Child welfare and medical systems learn more from examining mistakes rather than successes.
- By identifying themes and making recommendations for best practice, changes can be made without blaming.
- Public education is a key component in prevention.
- The safest sleeping environment for an infant is on its back in an approved crib with a firm mattress.
- Involvement with a CAS is not a factor in the vast majority of child deaths in Ontario; for those children who died while receiving CAS services, most deaths could not have been foreseen or prevented by a CAS.
- The most vulnerable ages for paediatric deaths is under 12 months, and between the ages of 12 and 18 years.

DU5C

In 1995, the Office of the Chief Coroner introduced a protocol to be used in investigating the death of any child under 2 years of age. Over the years, the protocol has been significantly refined, and in December 2006, it was determined appropriate to issue an up-to-date version of the protocol for use by the death investigation team (police, coroners, pathologists) to investigate sudden and unexpected deaths of all children under 5 years of age. As a result, the *Deaths Under Two Committee* was renamed the *Deaths Under Five Committee* to encompass the new age range.

Age 0 to 5 yrs Manner of Death	**2007**
Natural	101
Accident	34
Homicide	6
Undetermined	*42*
Total	**183**

Trends in Infant Deaths in Ontario

- Decrease in the number of Sudden Infant Death Syndrome (SIDS)
- Increase in the number of Sudden Unexpected Death (SUD)
- Unsafe sleeping, bed-sharing were contributing factors to the SUD total
- Ontario in 2006 – 5 SIDS; 27 SUD (with bed-sharing or unsafe sleeping as contributing factors).

Cases Reviewed by DU5C in 2006-2007

- A total of 186 cases were reviewed in this 2 year period (2006 – 69; 2007 – 117)
- 77 (41%) cases involved unsafe sleeping environments (2006 – 27; 2007 – 50)
- 41 (53%) of these unsafe sleeping related cases involved bed-sharing

Unsafe Sleeping Environments and Bed-sharing vs. Co-sleeping

The terms SUD or SUDI (Sudden Unexpected Death in Infancy) are now often used instead of SIDS in many jurisdictions, including Ontario, in some deaths previously considered to be SIDS. SIDS, being a diagnosis of exclusion, is reserved for deaths of infants where there are no positive findings after a complete and thorough investigation has been conducted.

Increasingly, the findings of "unsafe sleeping environment" and "bed-sharing" are being recognized as positive findings in the death investigation leading to the manner of death being classified as 'undetermined'. This change is causing a diagnostic shift in the mortality data globally, and can cause confusion.

In Ontario, the DU5C considers the sleep environment in all deaths of children who die during sleep, particularly those under the age of one year. Unsafe sleeping environments include surfaces that are not designed for infant sleep, such as adult beds, couches, armchairs and infant swings. However, any sleep surface that is cluttered with pillows, blankets, toys, duvets and other objects is deemed to be an unsafe sleeping environment.

The terms "co-sleeping" and "bed-sharing" are often used interchangeably by professionals and in the literature. The PDRC and the DU5C have committed to using "bed-sharing" to mean an infant sharing the same sleep surface with someone else (usually an adult, but occasionally a sibling). The term "co-sleeping" is used to describe an infant sharing the same room with the caregiver (s).

The number of infant deaths reviewed by the committees where unsafe sleeping practices, including bed-sharing, are factors, is a growing concern. While there is no way of knowing how many parents share a bed with their infants without incident, the frequency with which death results is a genuine public safety issue. Various Child Death Review teams share this view and several organizations have taken a strong stance and have issued position statements and warnings about the risks associated with bed-sharing. Although a controversial issue, the PDRC/DU5C members believe it is a growing issue for public safety and it would be irresponsible not to report the number of these deaths reviewed in Ontario. This message is meant to raise the awareness of parents, alternate caregivers, and professionals who work with young children, as it is critical in the prevention of future deaths. Further research in this area is warranted and is ongoing.

Case Example

A 3 month old baby was found dead in the morning by the mother. The home was described as cluttered with clothes, toys, household items and garbage. The kitchen had dirty dishes, baby bottles etc. littered over the counters and table top. The mother was known to sleep on the couch with the baby on a regular basis; the other young child slept in a playpen.

Cause of Death

Sudden Unexpected Death (SUDI), bed-sharing in an unsafe sleep environment

Manner of Death

Undetermined

Conclusion

In reviewing child deaths, we all learn from:

- Investigations
- Internal Reviews
- Death Review Committees
- Inquests
- Disseminating results & recommendations

"Mistakes are a great educator when one is honest enough to admit them and willing to learn from them" … (anonymous).

Regional Supervising Coroner's Reviews

Regional Supervising Coroner's Reviews have been conducted by the Office of the Chief Coroner for a number of years as an alternative to an inquest where there appears to be specific areas that may be the focus of recommendations, and in matters where the medical issues may be complex. This is especially true when issues identified are confined to one hospital department. Historically, Regional Supervising Coroner's Reviews have been undertaken in hospitals, however; the process is applicable to other institutions with potential of similar benefit.

The meeting format is more informal than an inquest. Hospital staff who were directly involved in the care of the deceased, appropriate administrative staff, the chief (nursing and physician) of the department, the hospital chief of staff and others, who the hospital deem to be appropriate, are invited to a meeting chaired by the Regional Supervising Coroner.

These meetings allow those involved in providing care to comment on issues identified during the initial part of the coroner's investigation with respect to verifying or clarifying the events. Experience has demonstrated that the medical record, typically one of the primary sources of information to the coroner, may not completely reflect all of the clinical events. The meetings allow opportunity for clarification of the issues identified and allow reflective learning through discussion. The goal is to generate recommendations that are insightful, reasonable, practical, and enhance medical organizational effectiveness by those who participated in the deceased's care.

In 2007, the Office of the Chief Coroner conducted 11 Regional Coroner's Reviews. While the majority involved hospitals, one such review was initiated with respect to the issue of road safety and winter driving hazards. The number of reviews conducted in the regions are as follows:

Central - 4 East - 2 West - 2 North – 3

While the findings and recommendations flowing from these reviews are not disseminated publicly, the family of the deceased are informed of any changes that may have resulted from the Regional Supervising Coroner Review process. The Office of the Chief Coroner acknowledges the support of involved medical institutions, service providers, practitioners and other relevant institutions/agencies for their participation and preparedness towards affecting meaningful change to enhance public safety.

Legal Briefs

The law affecting the work of coroners is generally derived from two primary sources:

1. legislative enactments, through the passage of new statutes or regulations; and
2. legal principles expressed by the courts through decisions that interpret and apply the legislation

In 2007, judicial decisions contributed to the growing body of law involving coroners, those who work with them in death investigations, and their important public responsibilities. Several decisions helped make 2007 a landmark year in the history of the Office of the Chief Coroner. Specifically, the role of the discipline of pathology within the death investigation process, particularly in the context of the criminal justice system, came under intense scrutiny.

Inquests

Ontario (Attorney General) v. Ontario (Human Rights Commission)
Heard: June 25-27; Decision Released: December 18, 2007

This case was a review of the decision of an Ontario Human Rights Tribunal adjudicator who had determined that s. 10 of the *Coroners Act* was discriminatory in that it did not provide for mandatory inquests in the case of persons who die while involuntarily detained in psychiatric facilities. The Ontario Divisional Court held that the failure to so provide did not result in discrimination within the meaning of the Ontario *Human Rights Code*, R.S.O. 1990, c. H. 19, as amended.

The Divisional Court re-affirmed that the Coroner's duty is to serve the public interest and not any individual private interests.

In providing mandatory inquests, the legislation draws a distinction on the basis of the different vulnerable circumstances of particular persons, the varying levels of public oversight of their conditions while living, and the different risks that accompany deaths in particular locations.

The Court made helpful observations respecting the overall purposes of the *Coroners Act* and in doing so, affirmed the traditional understanding of those purposes within the Office of the Chief Coroner. The Court stated those purposes in both positive and negative terms, as follows:

1) The purpose of the *Act* is to ensure that no death is overlooked, concealed or ignored.

2) On the other hand, the purpose of the *Act* is not to hold anyone accountable or to assign blame, even though that may be the desire of some.

Forensic Pathology

In 2005, Dr. Barry McLellan, Chief Coroner for Ontario, announced the review of criminally suspicious cases dating back to 1991, where Dr. Charles Smith, the Director of the Ontario Forensic Pathology Unit at the Hospital for Sick Children, had conducted an autopsy or an opinion of consultation. The proposed purpose of this review was to determine whether the conclusions reached by Dr. Smith could be supported by all the information available to him. Ultimately, 45 cases, including one case from 1988, met the review criteria.

The Office of the Chief Coroner arranged a panel of five internationally respected experts in forensic pathology to review the 45 cases in order to answer the following:

- whether they agreed that the important examinations were conducted
- whether they agreed with the facts reported as arising from the examinations conducted and
- whether they agreed with the interpretation of the examinations conducted with respect to the cause and where an opinion was provided, the mechanism of death

In April 2007, Dr. McLellan announced the results of this review. In all but one of the 45 cases, the reviewers agreed that Dr. Smith had conducted the important examinations that were indicated. In nine cases, the experts did not agree with significant facts that appeared in either a written report, or that came forward during expert testimony in court. In 20 of the 45 cases, the reviewers had some issue with the opinion of Dr. Smith that appeared in a written report, testimony in court, or both.

In response to the results of the review, on April 25, 2007, the Government of Ontario, under the *Public Inquiries Act*, established the Inquiry into Pediatric Forensic Pathology in Ontario.

Case Law Developments in the Courts

The following three judicial decisions from 2007 highlighted the importance of the provision of fair and accurate pathology evidence in the criminal justice system.

Reference re Truscott, 2007 ONCA 575, [2007] O.J. No. 3221, 225 C.C.C. (3rd) 321
Heard: January 31 to February 14; Judgment released: August 28, 2007

In one of the most widely-known murder cases in Canadian history, the Court of Appeal for Ontario entered an acquittal for Mr. Truscott after setting aside his conviction for the 1959 murder of Lynne Harper in south-western Ontario. The conviction was set aside as a result of the admission of new medical evidence, including evidence from Ontario's Chief Forensic Pathologist (Dr. Michael Pollanen). That evidence, in the Court of Appeal's judgment, established that medical evidence given at the trial, in relation to the time interval within which the death occurred, was scientifically unsupportable. The acceptance of that evidence was critical to the Crown's case against Mr. Truscott.

The Queen v. William Mullins-Johnson, 2007 ONCA 720, 87 O.R. (3rd) 425, [2007] O.J. No. 3978, 228 C.C.C.(3rd) 505
Heard: October 15; Judgment released: October 19, 2007

In this case, Mr. Mullins-Johnson had been convicted of first degree murder in connection with the death of his niece. He spent 12 years in custody. Appeals to the Court of Appeal and the Supreme Court of Canada were dismissed. The Minister of Justice referred the matter back to the Court of Appeal. That court determined that new forensic pathology evidence (that came to light only since 2005) conclusively demonstrated that the evidence of the experts, including two pathologists, who testified at the trial that the deceased was a victim of violence, were wrong. The new evidence consisted of the testimony of Dr. Pollanen and the reports of five other experts, and showed that contrary to the Crown's evidence at the trial, there was no evidence that the child had been sexually assaulted or to support a finding of homicidal suffocation, the cause of death relied upon by the Crown at the trial. Some of these reports were authored by experts commissioned by the Chief Coroner as part of the review of the work of Dr. Smith.

As a result of the new medical evidence, the Court of Appeal, on the joint agreement of defence and Crown counsel, concluded that there was no evidence of the commission of any offence in connection with the niece's death and accordingly directed that Mr. Mullins-Johnson be acquitted.

The Queen v. Marco and Anisa Trotta, 2007 SCC 49, [2007] 3 S.C.R. 453, 225 C.C.C. (3rd) 505
Heard: October 12; Judgment released: November 8, 2007

Marco and Anisa Trotta had been convicted of offences involving the culpable homicide of and other offences of abuse against their infant son, Paolo. Their convictions had been upheld by the Court of Appeal for Ontario in 2004. Marco's convictions included second degree murder and Anisa's included criminal negligence causing death.

New evidence, unavailable at the time of the trial and appeal to the Court of Appeal, was tendered in the Supreme Court of Canada. That evidence, consisting of the opinions of Dr. Pollanen and of Dr. Simon Avis, discredited the expert evidence of Dr. Smith and of Dr. Chan, both of whom were called by the Crown at the trial.

In this case, the Supreme Court of Canada did not enter acquittals, but rather ordered new trials in relation to all charges. Consequently, the reasons of the court contain very little reference to the details of the evidence from the trial or the new evidence admitted on appeal.

Note: At his re-trial in September 2009, Marco Trotta was found guilty of one count of assault causing bodily harm and one count of manslaughter, in the death of his son Paolo.

Body Donation

In 2007, 323 people donated their bodies to an Ontario School of Anatomy after they died. These schools use donor bodies to train current and future doctors. Without the generosity of donors, opportunities to enhance skill sets and expand knowledge for physicians would be severely curtailed. There are 10 Schools of Anatomy in Ontario:

- Canadian Memorial Chiropractic College
- Humber College
- McMaster University
- Northern Ontario School of Medicine
- Queen's University
- University of Guelph
- University of Ottawa
- University of Toronto
- University of Waterloo
- University of Western Ontario

Consent to donate one's body can be done in three ways:

- By filling out a consent form given out by the School of Anatomy
- In writing, as per section 4 of the *Trillium Gift of Life Network Act* or
- Orally, in the presence of at least two witnesses during his/her last illness

If consent has not been given prior to death, it may be given by next-of-kin after death, as per section 5 of the *Trillium Gift of Life Network Act*. It is suggested that if someone wishes to donate their body, that this be detailed in ones' will.

Donations are usually made as close to the donors home as possible however; this is dependent on the particular needs of the school. It is important to remember that the schools retain the right to refuse to accept a donation under certain circumstances. For instance, a donation will not be accepted if:

- An autopsy was conducted
- Embalming occurred
- Amputation occurred
- The deceased had certain infectious diseases or was emaciated.
- The school is not in need of donations

Each School of Anatomy has an annual service in which family and friends of the deceased are invited to attend. This is the school's opportunity to honour and remember their donors and their generosity. Remains are respectfully cremated and are interred in the school's plot or, may be returned to the family upon request.

For more information on whole body donation, please call your local School of Anatomy, or the Office of the Chief Coroner at 416-314-4028.

Research

The Office of the Chief Coroner is active in research, both within the organization, other ministries and with outside agencies, such as Statistics Canada, The Ontario Trauma Registry, Toronto Public Health, Traffic Injury Research Foundation and many more organizations, in the interest of advancing public safety in Ontario.

Statistics Canada

The Office of the Chief Coroner's information database was used for a pilot project to develop the mapping of standard coding of case files translated into the international coding system for collecting medical data across Canada. Coroner/Medical Examiner data positively contribute to injury prevention campaigns and policies.

Ministry of Transportation and The Traffic Injury Research Foundation

These two organizations use data from the Office of the Chief Coroner of all motor vehicle accidents to promote public awareness of drinking and driving and seatbelt usage.

Ontario Trauma Registry (OTR)

The Ontario Trauma Registry deals with all lead trauma hospitals in Ontario to collect medical data of injuries in conjunction with the Office of the Chief Coroner. Its purpose is to provide trauma death data for the promotion of education and policies in the medical field.

Toronto Public Health

Toronto Public Health collects data of all drug related deaths in Toronto. This data, tabulated since 1986, provides information on both legal and illicit drugs use, combinations used and their associated dangers. Drug-related deaths are a key indicator in multi-agency reports on drug use compiled by Toronto Public Health. The data is used to facilitate early recognition, a better understanding of drug-use trends and to share ideas concerning issues of local importance related to drug use. An example of their work is the promotion of a needle exchange program to enhance public safety.

Closing Message from the Chief Coroner

I would like to extend my thanks to all of the people in our Office including Regional and Head Office staff who continue to provide excellent service. In particular, I would like to thank Cheryl Mahyr, Dorothy Zwolakowski, Cathy Craig, Amanda Mattix, Katherine Stephen, Dr. Bert Lauwers and Dr. Bonita Porter. These individuals have consistently delivered excellent and professional work. This report would not be possible without them.

Resources

Office of the Chief Coroner:
http://www.mcscs.jus.gov.on.ca/english/office_coroner/about_coroner/about_coroner.html

Ministry of Community Safety and Correctional Services:
http://www.mcscs.jus.gov.on.ca/english/default.html

Service Ontario (Death and Birth Certificates):
http://www.serviceontario.ca

Coroners Act:
http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90c37_e.htm

Additional Information

For additional information or statistics, please contact:

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