Coroner’s Investigations in Hospitals: The Purpose and Process

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Chair, Patient Safety Review Committee, OCC
Associate Professor, Emergency Medicine, U of T
Objectives

After this presentation, participants will understand:

– the role of the coroner and the purpose of coroner’s investigations in hospitals

– when and how to report deaths to the Office of the Chief Coroner

– how the coroner’s investigation can enhance public and patient safety
What is a Coroner?

• Derivation:
  – from Anglo-French, “corone” (crown)
  – “Crowners”
    • Determined, for the king or queen, who died, when, where, cause of death, and who was to blame
    • Collected taxes owed to Crown upon death

• Modern day:
  – Appointed by government to investigate deaths in the public interest
Who is a Coroner?

• Coroner systems differ by jurisdiction
  – Physicians
  – Judges / lawyers
  – Lay public
    • Elected
    • Appointed

• Medical examiner systems
  – Pathologist-led

• In Ontario, all coroners are physicians
  – Bring *clinical* experience to death investigation
What does a Coroner do?

“We speak for the dead to protect the living”
What does a Coroner do?

• Role is set out in *Coroners Act*

• Investigate certain deaths and determine:
  – Who died; when and where; and medical cause and manner of death [“five questions”]
  – Whether an inquest is necessary
  – If there are recommendations to prevent future deaths
What does a Coroner do?

• Investigate non-natural deaths
  – Homicide
  – Suicide
  – Accident
  – Undetermined
What does a Coroner do?

• Investigate certain natural deaths:
  – Concerns about care
  – During / following pregnancy
  – Certain institutional deaths
  – Deaths in custody
  – Not under care of physician
  – ”Suddenly and unexpectedly”
Some Numbers

- 90,000 deaths annually in Ontario
- 16,000 coroner’s investigations
  - ~70% = natural

- ~74,000 natural deaths not investigated by a coroner annually in Ontario
What does a Coroner NOT do?

- A Coroner does not make judgments regarding:
  - Culpability / accountability (criminal; civil)
  - Quality / appropriateness of medical care
When to Call a Coroner

**Duty to give information**

10. *(1)* Every person who has reason to believe that a deceased person died,
(a) as a result of,
   (i) violence,
   (ii) misadventure,
   (iii) negligence,
   (iv) misconduct, or
   (v) malpractice;
(b) by unfair means;
(c) during pregnancy or following pregnancy in circumstances that might reasonably be attributable thereto;
(d) suddenly and unexpectedly;
(e) from disease or sickness for which he or she was not treated by a legally qualified medical practitioner;
(f) from any cause other than disease; or
(g) under such circumstances as may require investigation,
shall immediately notify a coroner or a police officer of the facts and circumstances relating to the death, and where a police officer is notified he or she shall in turn immediately notify the coroner of such facts and circumstances. R.S.O. 1990, c. C.37, s. 10 (1).
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What is “Natural”?

• End result of common disease process, e.g., heart disease, stroke, cancer

• Must be “all natural”
  – Every step in causal chain
  – Includes complications of treatment
  – Does not include errors in treatment
Common Myths

• Unless there are other reasons under Section 10, you do not need to call a coroner for:
  – Every death that occurs in the ED
  – Every death within 24 hours of admission
  – Every post-operative death
Reporting Deaths to the Coroner

- If death appears to fit criteria of the *Coroners Act*, contact Coroner’s Dispatch
  - If obvious, coroner will attend
  - If not, may call to discuss case and decide whether or not to investigate

- If coroner does **not** investigate, attending physician* completes death certificate
Provincial Coroner’s Dispatch

(416) 314-4100

1-(855)-299-4100
Death Certificate

• Poorly understood
• Poorly completed
• Most common mistake:
  – MECHANISM vs CAUSE of death
  – Atherosclerotic heart disease = cause
  – Cardiac arrest = mechanism
Cause of Death

• Your best medical judgement as to most likely cause
  – Balance of probabilities
• Use whatever clinical information you have
  – Age; gender
  – Risk factors
  – Medications
  – Circumstances of death
But what if I don’t **know** the cause of death?

• 60 year old male
  
  – Sudden witnessed collapse at mall
    
    • VF → asystole; died in ED
  
  – No other information; no friends/family
  
  – Receipts from drug store
    
    • Ramapril; HCTZ; nitroglycerine spray; ASA
Cause of death?

- Hypertensive heart disease
- Atherosclerotic heart disease
- Ischemic heart disease
- Atherosclerotic and hypertensive heart disease

**BUT NOT:**

- “Cardiac arrest”
Writing the Cause of Death

• Formula (WHO):
  Part I:
  – “A” as a result of “B” as a result of “C”
    • Ia = immediate cause
    • Ib = antecedent cause
    • Ic = underlying cause
  Part II:
  – Other contributing factors (not causal to Ia)
### CAUSE OF DEATH

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>Part I</td>
<td>Immediate cause of death</td>
<td>(a) due to, or as a consequence of</td>
</tr>
<tr>
<td></td>
<td>Antecedent causes, if any, giving rise to the immediate cause (a) above, stating the underlying cause last</td>
<td>(b) due to, or as a consequence of</td>
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<td></td>
<td>(c) due to, or as a consequence of</td>
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<td>(d) due to, or as a consequence of</td>
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12. If deceased was a female, did the death occur:  
   - [] during pregnancy (including abortion and ectopic pregnancy)  
   - [ ] within 42 days thereafter  
   - [ ] between 43 days and 1 year thereafter

13. Was the deceased dead on arrival at the hospital?  
   - [ ] Yes  
   - [ ] No

14. Was there a surgical procedure within 28 days of death?  
   - [ ] Yes  
   - [ ] No

15. Date of surgery (m/d/y)

16. Reason for surgery and operative findings
Death Certificate

• e.g:
  – 70 year old male
  – Hx colon cancer with mets to lung
  – Develops obstructive pneumonia
  – Smoker; COPD history
### CAUSE OF DEATH

#### Part I
Immediate cause of death

**Respiratory arrest**

**Hypoxia**

**Streptococcal pneumonia**

**Cancer**

#### Part II
Other significant conditions contributing to the death but not causally related to the immediate cause (a) above

---

12. If deceased was a female, did the death occur:

- [ ] Ectopic pregnancy
- [ ] within 42 days
- [ ] within 43 days and 1 year thereafter

13. Was the deceased dead on arrival at the hospital?

- [ ] Yes
- [ ] No

14. Was there a surgical procedure within 28 days of death?

- [ ] Yes
- [ ] No

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### CAUSE OF DEATH

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   Immediate cause of death  
   (a) **due to, or as a consequence of**  
   (b) **due to, or as a consequence of**  
   (c) **due to, or as a consequence of**  
   (d)  

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| 15. Date of surgery (m/d/y) |
| 16. Reason for surgery and operative findings |
When is a Post Mortem Done?

- Not able to answer the “five questions”
- Homicides / criminally-suspicious deaths
- Most suicides
- Certain kinds of accidental deaths
- Natural deaths with medicolegal issues
Coroner’s Warrant PM

• Coroner may order post mortem in any case
  – May be done against objections of family
  – No formal “appeal” process

However:
  – Whenever possible, try to accommodate for religious / conscience-based objections
Coroner’s Warrant PM

- Coroner’s warrant PMs done by select group of pathologists on register
  - 133 pathologists in Ontario may perform PMs under coroner’s warrant
    - Most are in community hospitals
  - 31 are forensic pathologists
    - Most are in Provincial Forensic Pathology Units (Toronto), or in Regional FPUs:
      - Hamilton, London, Kingston, Ottawa, Sudbury
Consent PM

• If coroner is not ordering PM, family / care providers may wish PM to better understand disease processes

• May approach family to obtain consent for hospital PM
  – Can do this even before coroner makes decision re: PM
  – Coroner’s warrant will supercede consent
Organ and Tissue Donation

• OCC/OFPS strongly supports organ and tissue donation whenever possible

• Collaborative approach
  – Clinical team
  – Coroner
  – Forensic pathologist
  – Police
  – Trillium Gift of Life Network
Role of the Death Investigation

• **Investigative:**
  – Answering the “five questions”
  – Certifying death

• **Preventative:**
  – Aimed at preventing similar deaths in future
Chief Coroner and duties

4. (1) The Lieutenant Governor in Council may appoint a coroner to be Chief Coroner for Ontario who shall, (…)
   (d) bring the findings and recommendations of coroners’ investigations and coroners’ juries to the attention of appropriate persons, agencies and ministries of government;
Coroners Act

Recommendations

18(2) The coroner may make recommendations to the Chief Coroner with respect to the prevention of deaths in circumstances similar to those of the death that was the subject of the coroner’s investigation.
Coroners Act

Disclosure to the public

18 (3) The Chief Coroner shall bring the findings and recommendations of a coroner’s investigation, which may include personal information as defined in the Freedom of Information and Protection of Privacy Act, to the attention of the public, or any segment of the public, if the Chief Coroner reasonably believes that it is necessary in the interests of public safety to do so.
What does this mean?

• We must answer the five questions
• We may make recommendations to prevent deaths in future
• We can disclose personal information, if necessary, to protect the public
Patient Safety: What’s the Issue?

- Canadian Adverse Events Study (2004)
  - 7.5% of people admitted to hospitals in Canada experienced at least one adverse event
    - Almost 21% of such adverse events are fatal
    - 37% of all adverse events are preventable
- 2.5 million annual hospital admissions in Canada
  - 14,000 preventable deaths due to adverse events!
Errors versus Negligence

- Most errors not made by incompetent, careless or “bad” people!
- Shift from “naming, shaming and blaming” to identification and correction of system issues
- Consistent with Coroners Act
  - No finding of legal responsibility
  - Fact-finding, not fault-finding
What About Negligence?

- Some errors do result from poor care!

- Role of DI system is to identify care issues, and raise through:
  - Hospital Quality of Care reviews
  - Professional colleges
How Does the Death Investigation System Help Improve Patient Safety?

• Investigative Role
  – Coroner reviews circumstances; applies clinical experience and expertise
  – Pathologist connects the clinical story with the pathology
  – Develop fulsome understanding of cause and manner of death
    • Known complication of treatment = natural
    • Error (dose; technical; equipment) = accident
How Does the Death Investigation System Help Improve Patient Safety?

• Preventative Role
  – Regional Coroner’s Review
  – Death Review Committees
  – Inquests
  – Special death reviews
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Cluster of Post-Op Deaths

• Series of post-operative deaths following elective laparoscopic bariatric surgery at one hospital
• March, 2008 – February, 2010
• 8 deaths
  – Same institution / program
  – 4 different surgeons
  – 2 different procedures
Regional Coroner’s Review

Attendees:
- Regional Coroner
- Deputy Chief Coroner
- Chief of Staff
- VP responsible for program
- Risk Management
- Surgical Director of Bariatric Surgery program
Regional Coroner’s Review

• Process:
  – Summary of each case and PM findings
  – Identification of themes
    • Post-operative monitoring / assessment
    • Late recognition of complications
    • Late return to OR for “re-look”

• Outcome:
  – Development of recommendations
Recommendations - RCR

• External review of program
  – Focus on six deaths April / 08 – Feb. / 10
  – OCC to receive results / recommendations

• **Temporary stop of all laparoscopic bariatric surgery at site pending review**

• Inform LHIN / MOHLTC

• Continue accreditation process through American Bariatric Society
External Review

- Conducted over two days by external bariatric surgeon
  - Review of all post-op deaths, including PM reports
  - Reviewed videotapes of procedures (all bariatric surgeons)
  - Observed three surgeons in OR
  - Reviewed post-op policies / procedures
  - Visited OR / PACU / ICU / ward
Conclusions of Ext. Review

• Incidence of surgical complications within accepted rates

• Opportunities to:
  – improve selection and medical optimization of patients pre-op
  – Enhance post-op care
  – Enhance collaboration between surgeons

• More liberal diagnostic laparoscopy for suspected complications
Changes Implemented

Pre-op

– Medical Director and APN
– Case review / “go/no-go” 2 weeks prior

Post-op

– 1:2 vs 1:5 nursing ratio (first 24h)
– Rounding 2x/d; different surgeons
– Low threshold for return to OR
Results

• In 12 months following review:
  – 450 cases
    • 30 day mortality = 0
      – 1 death between 30 and 90 days (0.22%)
    • 19 patients returned to OR (4.2%)
      – 3 leaks – all diagnosed and managed early

• All recommendations from external review implemented

• Hospital has become first non-US site accredited by American Bariatric Society
Leading Practice

Bariatric Program Referral and Intake Process

Organization:

Description:
The Bariatric Program’s referral and intake process elicits engagement from clients and their referring physician from their first point of contact with the bariatric surgical program. The process provides both parties with clear, concise, and timely information, which enables them to make an informed decision about whether the patient should pursue bariatric surgery. During the intake phase, a risk stratification system is used to triage patients as potentially low, medium, or high-risk for bariatric surgery. A comprehensive patient, family, and physician questionnaire provides a mechanism for data collection. We have seen improved patient satisfaction with the bariatric surgery program services, and improved staff satisfaction as a result of clearly defined roles and responsibilities for each team member, which avoids redundancy and information duplication.
Outcome

• Positive outcome
  – Changes resulting in improved care
  – Positive relationship between hospital and OCC
  – Hospital more proactive in identifying cases to OCC
How Does the Death Investigation System Help Improve Patient Safety?

• Preventative Role
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Death Review Committees

- Patient Safety Review Committee
- Pediatric DRC + Deaths Under Five
- Maternal and Perinatal DRC
- Geriatric and Long-Term Care DRC
- Domestic Violence DRC
- Construction Fatality Review Committee
Death Review Committees

- Chaired by Regional Coroner
- Members:
  - Clinical experts in relevant fields
  - Non-clinicians
    - e.g. – child welfare experts on PDRC
  - Pathologists
Case Example - PSRC

Elderly LTC resident admitted with symptoms of aspiration pneumonia. After further deterioration, the family opted for comfort care.

- Ordered morphine 4 mg SC q4h and morphine 2 mg SC q1h prn for pain.
- Two prn doses of morphine 2 mg were documented as given at 1615h and 2030h, with positive effect
Case Example (cont’d)

- The 0200h scheduled dose of morphine 4 mg documented as given at 0145h
- Patient found vital signs absent at 0400h
- Identified from narcotic count that the patient had received hydroMORPHONE 4 mg instead of morphine 4 mg.
Hydromorphone-Morphine Substitutions

• Numerous selection errors have occurred where hydroMORPHONE has been administered in error instead of morphine due to name similarity

• High-risk situations of look-alike/ sound-alike medications often not recognized

• Potential for harm is increased by the relative potency of hydroMORPHONE vs. morphine
Similar-Appearing Medications

Morphine 2 mg/mL

Morphine 10 mg/mL

Hydromorphone 2 mg/mL

Hydromorphone 2 mg/mL

Hydromorphone 10 mg/mL
Similar-Appearing Medications

Hydromorphone 10 mg/mL (2009)

Hydromorphone 2 mg/mL (2009)
PSRC Recommendations

• To the OHA; CNO; Ontario branch of Canadian Society of Hospital Pharmacists; Ontario College of Pharmacists
  – Stock wards with least number of doses, concentrations, and forms that will meet essential patient needs.

• To the OHA, CNO
  – Identify medications for which a manual independent double check is mandatory, such as opioids and other high-alert medications if an automated dispensing system is not being used.
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Coroner’s Inquests

• Mandatory
  – Custody deaths
  – Construction / mining
  – While restrained in psychiatric facility
  – Child while access restricted by court order
Coroner’s Inquests

• Discretionary
  – To answer the five questions
  – Public ascertainment of facts
  – Recommendations aimed at avoiding future deaths in similar circumstances
Changes from Inquests
King / Bertrand Inquest

• Donna Bertrand, 41
  – Prescribed OxyContin for back injury
    • Receiving up to 1440 mg / day

• Dustin King, 19
  – Chronic oxycodone abuse
    • Snorting OxyContin
    • Overdosed on OxyContin Rx to Bertrand

• 11 days after King’s death, Bertrand died of intentional overdose of paroxetine and venlafaxine
King / Bertrand Inquest

- Focus of inquest was the prescribing, dispensing, and diversion of prescription narcotics
- Concept of upper dosing limits for narcotics in non-cancer pain
  - 100 mg morphine equivalents / dose
  - 200 mg morphine equivalents / day
  - Oxycodone = 2x potency of morphine p.o.
King / Bertrand Inquest

• Jury made 48 recommendations
  – Withdrawal of CR products above threshold dose
  – Removal of above-threshold doses from ODB formulary
    • Restrict to Exceptional Access Program
  – Enhanced monitoring of opiate prescribing / dispensing
  – Education, Research
  – Comprehensive strategy for pain / addiction
Inquest jury seeks to take prescription opioids off Ontario’s streets
Following the Inquest...

- Purdue Pharma withdraws OxyContin from market
  - Replacement = OxyNEO
  - “Tamper-resistant”
- OxyNEO not on ODB formulary
  - Exceptional Access Program
Fatal overdose sparks warning about switch from OxyContin

By ANNA MEHLER PAPERNY
From Tuesday’s Globe and Mail

Physicians and pharmacists urged to work closely to ensure correct dosages of alternative opioids are prescribed and dispensed.

A Northern Ontario coroner says the province's doctors and pharmacists need to take extra care in switching patients from OxyContin to other opioids, following the death of a man whose doctor changed his prescription and gave him an incorrect dose.

Purdue Pharmaceutical is discontinuing its popular painkiller OxyContin in favour of OxyNEO, which is harder to crush and, in theory, tougher to snort and inject. Several jurisdictions are going further to stem the problem: Starting this month, seven provinces and the federal government's health benefits program will pay for OxyNEO only in exceptional circumstances. This means a sudden shift in treatment for patients across the country.

Michael Wilson, regional supervising coroner for Northwestern Ontario, says the man who died lived in the Kenora-Rainy River-Thunder Bay area, and had been prescribed OxyContin for years to treat his chronic pain. He was covered by a federal government program for first nations and Inuit that ended its previous coverage of OxyContin on Feb. 15.
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Special Death Reviews
Assembly of First Nations National Chief Commends all Parties for Supporting Suicide Prevention, Calls on Government to Work with First Nations

CNW
2011-10-05
Byline: ASSEMBLY OF FIRST NATIONS

In the House of Commons yesterday, all Parties showed support for a National Suicide Prevention Strategy that would "promote a comprehensive and evidence-driven approach."

"On behalf of all First Nations, I commend all Parliamentarians for coming together to support the calls for a national suicide prevention strategy and approaching the tragic issue of suicide collectively," said AFN National Chief Shawn Atleo.

On September 2 of this year, National Chief Atleo called on all levels of government to work with First Nations to implement key recommendations of a report by the Ontario Chief Coroner regarding youth suicides in Pikangikum First Nation. The report included a total of 100 recommendations in the areas of education, policing, child welfare and health care, with a particular focus on the development of suicide prevention strategies.
Motto of the OCC

“We speak for the dead to protect the living”