FORENSIC IN THE OR
VPNG CONFERENCE

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Presentation Outline

• Forensic Medicine Truth and Myth
  • News and Fake News
  • Media and Community perception

• The Work
  • Community need for Death Investigation
  • Who Investigates Deaths?
    • Pathologists/Doctors, Police, Coroners
  • Who are Coroners? and Forensic Pathologists?

• Reporting to the coroner
  • Who can?
  • What happens when you do?
  • PMCT in death investigation

• Giving evidence
  • The statement/report
  • Expert evidence and new technology
Australian inquiry 'won't change church'

Australia's child abuse royal commission should not expect to change the Catholic Church with some "magic bullet", priests have warned.

The commission needs to be realistic that changing the Catholic Church as a whole will not happen, Diocese of Broken Bay vicar general Dr David Ranson said.

Just because a media outlet says/shows/quotes something it might not be the complete truth
Forensic Medicine

**Medicine** skills and knowledge meeting the needs of the **Courts**
(and by implication the justice system including legal practitioners, government and police)

The courts expect they will hear **‘truths’** (related to the elements of the offence or the plaintiff’s claim) but they are NOT there to determine **‘the truth’** or the complete story of what happened

“He handed me the hairdryer and then there was a bang and my ear disappeared”

**Is the Truth left at the door of the court?**
The CSI Effect
The CSI Effect
The CSI Effect

The crime shows tell us that DNA gives us the answers
So
every case should have DNA evidence
### The CSI Effect

**Fact v. Fiction**

**How Often Do Forensic Experts Find Usable Evidence at a Crime Scene?**

- **Real Life:** 5% to 10% of all criminal cases involve biological evidence that could be subjected to DNA testing.
- **CSI:** 100% of the cases have usable evidence.

**How Often Are Forensic Tests Conclusive?**

- **Real Life:** 30% of cases have DNA that can be tied to another crime.
- **CSI:** 100% of the tests are conclusive.

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**How Long Does It Take to Process DNA Samples?**

- **Real Life:** A few weeks to several months.
- **CSI:** Approximately 33 seconds.

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*“This TV show comes on and everyone starts watching it - including the cops and prosecutors - and submissions to forensic laboratories go through the roof.*

Max Houck to the BBC

*On television, the toxicology results are available almost instantaneously. But when people find out that it can take several months, they can find that very difficult.*

Forensic pathologist Dr Patricia McFeeley to the BBC

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The popular TV shows portray scientists working in labs and solving crimes at rapid speeds, with technology that isn’t yet available. We take a look at the difference between how real forensic scientists work and how they are shown on TV.
Forensics in the ‘virtual’ or TV world and the ‘real’ world
NCIS

is an acronym for National Coroners Information System
No Masks

Police in the way – everyone in the way of the photographer
Removing bullets-
There’s a right way and
There’s a wrong way
To Communicate you need to understand the Myths

To change the Myths you need to Communicate
Death Investigation Myths (ALL WRONG)

• The People
  • Pathologists are not Doctors
  • Coroners perform autopsies
  • Coroners are Doctors
  • Detectives look over the pathologists shoulder
  • Pathologists don’t see living patients
  • Pathologists talk to the corpse during the autopsy
  • Pathologists crack jokes and “sassy” quips over the body
  • Pathologists say things just to disgust mortuary visitors
  • Forensic Pathologists don’t like being cross examined
  • Forensic Pathologists are interested in outcome of trials
Forensic Pathology Myths

• The Job
  • Pathologists interrogate/shoot/catch suspects
  • Pathologists can determine the cause of death
    • Immediately on arrival at the scene
    • By sniffing the body
    • By using laser enhanced 3D virtual construct models floating in the air
  • Pathologists can tell police the time of death-
    • With an accuracy of a few minutes
    • With an accuracy of a few tens of minutes
    • With an accuracy of a few hours
  • Pathologists do autopsies in a white coat and wearing a bow tie.
  • the cause of death is always a ‘mystery’ and like a ‘complex puzzle’ which we have to solve
How do you choose to have your death investigated?

• When to die
• Where to die
• What to die of
• Manner of death
• Event of death
• Investigation of death
In our Community

Who Investigates most deaths?
“the coroner frequents more public houses than any man alive. The smell of sawdust, beer, tobacco-smoke, and spirits, is inseparable in his vocation from death in its most awful shapes”.

Charles Dickens. Bleak House Ch. 11.
Coroners Acts

(a) to establish, so far as possible,—

(i) that a person has died; and
(ii) the person’s identity; and
(iii) when and where the person died; and
(iv) the causes of the death; and
(v) the circumstances of the death;

(b) to make recommendations that, reduce the chances of the occurrence of other deaths in circumstances similar to those in which the death occurred;
Coroners Court of Victoria

- 10 Coroners, 10 Solicitors, 15 Clerical Staff
- Coroners Responsibility:
  - The Coroners Act 2008 – The Preamble states:
    - The coronial system of Victoria plays an important role in Victorian society. That role involves the independent investigation of deaths and fires for the purpose of finding the causes of those deaths and fires and to contribute to the reduction of the number of preventable deaths and fires and the promotion of public health and safety and the administration of justice.
  - The investigation of reportable deaths
  - The investigation of reviewable deaths
  - Judicial findings including recommendations
  - Coroners Prevention Unit CPU
  - Jurisdiction includes deaths of Victorian residents overseas

Coroners in Australia are Lawyers not Doctors
Coroners don’t do autopsies

For that – they rely on Forensic Pathologists
The Forensic Pathologists

Who are they?

- Medical practitioners
- Medical specialists
- Consultant pathologists
- Death scene examiners
- Dead body examiners
- Experienced witnesses

Approximately 15 years of graduate and post graduate medical training to get professional accreditation as a medical specialist in forensic pathology
In order to support the Coroner

1. Victorian Institute of Forensic Medicine
   • Department of Forensic Medicine *Monash University*

2. Coroners Court of Victoria

3. National Coroners Information System

4. Donor Tissue Bank of Victoria

• **Facilities** *(rebuilt 2011-2014)*
  • Courts
  • Mortuary
    • Average holding 100 (max. 300)
    • Dual Beam CT scanner
  • Laboratories
    • Molecular Biology, Microbiology
    • Toxicology, Anatomical Pathology/Histology
  • Forensic Medical Clinic Rooms
  • Photographic Studios
  • Information Services
Forensic Services support the Coroner

Forensic Pathology:
- 6,000 – 7000 medico/legal death investigations (2,500 – 3000 autopsies)
- 600 Body not in cases;
- Identification of remains (DNA, Odontology, Anthropology)
- Radiology (CT + CT Angiography, Digital)
- Familial disease detection/referral

Donor Tissue Bank of Victoria:
- Postmortem tissue for therapeutics and research

Clinical Forensic Medicine:
- 4,000 clinical evaluations
  - Sexual Assault; Family Violence
  - Physical Assault; Child Abuse
  - Traffic Medicine; Drug Impairment

International:
- Disaster Victim Identification
- Human Rights Abuse
- Education

Toxicology:
- Death investigation cases 6000-7000
  - 24 hour drug analysis
- Police cases 13,000 cases
- External consultation and analysis
- Commercial hair testing
Victorian Cases by Initial Manner of Death

6000 Death Investigations
But less than
200 Inquest hearings
Medico-legal Death Investigation

Integration of:

• Circumstantial information
• Official documentation
• Scene attendance/photographs
• Medical history
• Medical records
• PM: CT/MRI/Radiographs
• External examination
• +/- Photography, video
• +/- Autopsy data
• +/- Clinical input: Possible sexual assault
• +/- Interpretation toxicological/microbiological data

Information driven process:
Quality of outcome depends on Quality of information provision
What happens in Practice

- Death is reported to Coroner by ringing CAE

- **The CAE nursing staff**
  - Collect demographic information
  - Collect medical information
  - Collect medical records, ante-mortem medical specimens etc.
  - Request Police to attend: (if not already present)
    - Complete police information form
      - Control the scene
      - Seize items of evidentiary importance
      - Take witness statements
      - Maintain chain of custody
  - Identify and Communicate with Next-of-Kin (**Initial Family Contact**)
    - Obtain information regarding
      - relevant lifestyle factors, medical history, GP, Dentist, family members, Next of Kin, Executor,
      - The name of the family’s funeral service provider
      - Family views regarding autopsy
    - Provide information about the Coronal process
    - Provide initial bereavement support
    - If required – arrange appointment for formal visual identification
  - Arrange for the body to be transported to VIFM mortuary
What happens in Practice

• On arrival of deceased
• Preliminary examination (Coroners Act 2008)
  • a visual examination of the body (including dental examination);
  • the collection and review of information, including personal and health information relating to the deceased person or the death of the person;
  • the taking of samples of bodily fluid including blood, urine, saliva and mucus samples from the body (which may require an incision to be made) and the testing of those samples;
  • the imaging of the body including the use of computed tomography (CT scan), magnetic resonance imaging (MRI scan), x-rays, ultrasound and photography;
  • the taking of samples from the surface of the body including swabs from wounds and inner cheek, hair samples and samples from under fingernails and from the skin and the testing of those samples;
  • any other procedure that is not a dissection, the removal of tissue or prescribed to be an autopsy;
• the fingerprinting of the body;
• Clothing / possessions examined collected
What happens in Practice

• Case management meeting
  • Persons Present
    • Duty Coroner
    • Duty Pathologist
    • CAE Nurse
    • (Identification Manager – if required)
    • (Coroners Solicitor – if required)

• Case Triage
  • Review of Pathologist’s preliminary examination report
    • Pathologist’s advise regarding possible Cause of Death
    • Pathologist’s advise regarding need for autopsy or partial autopsy
  • Review of preliminary toxicology report & CT scan findings
  • Review of Identification report
  • Coroner hears and considers:
    • Family issues/requests
    • Police issues/requests
    • Medical issues/requests
    • Legal issues (Criminal and /or Civil) – legal representatives issues/requests
What happens in Practice

Coroner Determines

- Whether they are satisfied as to the identity of the deceased
- Who is the Senior Next-of-Kin
- Whether or not they will order an autopsy or partial autopsy
- Whether they need to authorise any invasive investigation
  - CT angiogram
  - Tissue biopsy
- When the body can be released to the family and to who

Second Family contact

- CAE nurse contacts the family and informs them of the Coroner’s decision
  - opportunity for reconsideration/appeal
Modern Autopsy Imaging Techniques

- CT
- Enhanced CT
  - angiography etc
- MRI
Whole Body CT SCANS are now carried out in every case.
CT analysis – new paradigm

• scan once, post process many times
• $1^\circ$ survey
  • initial radiological CT report
• $2^\circ$ survey
  • specific dental, anthropological assessment
• $3^\circ$ survey
  • retrospective radiological review
3D Reconstruction and Mark-up of Wound Path for Presentation in Court
Complex Injury Depiction and Physical 3D print of Skull
X-ray v CT scan
Tension pneumothorax
Intracranial Haemorrhage
70 y.o. male, hit by car and pushed onto back. Neurological deterioration 30 minutes after arrival in ED.
Intracranial Haemorrhage
70 y.o. male, history of hypertension suddenly collapsed while mowing his lawn.
Iino M, O'Donnell C, Burke, M. Post mortem CT findings following intentional ingestion of mercuric chloride. Legal Medicine (Tokyo). 11(3), 136-8, 2009
Why is *forensic* science different from *non-forensic* science?

**COMMUNICATION**

Unlike other areas of medicine and science. With forensic work it’s ‘what happens in Court’ that counts.

This means that the scientific and medical evidence must be understood by non-scientists including jury members rather than by other scientists, doctors or dentists.
What you believe depends on who you are and your intrinsic bias

Pathologist  Clinician
Whether you (jury) believe the evidence at trial depends on

- What evidence the Judge allows to be admitted
- The evidence the crown chooses to present
- Evidence of fact provided by witnesses
- Evidence of opinion provided by witnesses
- The defence skill in challenging the crown case and the witnesses
- Believability of witnesses
- Comprehendability of the evidence
- Your education level and personal biases
- The way the evidence is elicited through the questions asked and counsel’s response to the answers
What is EVIDENCE?

- A philosophical answer
- “it is what you think helps you know or work out about the nature of things;
  - Your personal experience and perceptions achieved through the use of your own senses.
  - It may include what you have been told (and believe) by others”
- It may be wrong
- It may be right
- Different people may have different beliefs as to its value or significance
What is EVIDENCE?

• A police answer
  • It is what we say happened. – NO
  • It is why we believe we have found out what happened. – Ahh YES
What is EVIDENCE?

• A legal answer

  • The Prosecutor
    • It is what is in the brief.

  • The Defence
    • It is what we have to undermine.

  • The Judge
    • It is what a court is allowed to be told.
What is EVIDENCE?

• A Witnesses answer
  • It is the facts I uncovered
  • It is the opinion I formed as an expert
  • It is the opinion I can validate from the medical evidence base
  • It is what I believe is true
  • IT IS WHAT I HAVE TO COMMUNICATE
Definitions

• Fact
  • A belief about the physical world based on detection of stimuli by the senses and believed by the observer to be true

• Opinion
  • A seemingly reasonable (evidence based) interpretation of your own or another's sensory observations assumed to be facts

• Expert opinion
  • An opinion that the Court permits to be given in evidence by virtue of the witness having special knowledge over and above that of the general community (determined by the court not by the professional discipline)
Who decides on expertise?

• In the Court?
  • Judge
  • Legal criteria for expert status and what constitutes an admissible opinion
  • Tested by “voire dire”
    • Site visit

• In our institutions/profession?
  • Our peers (medical specialists) management, accreditation
    • Position, training, experience, knowledge, study, qualification by examination, practice standards

• New Field Issue
  • Validation, reliability
  • Qualifications, accreditation

• BUT Courts want evidence and tend to admit what they need
Probative vs Prejudicial Evidence

Evidence law restricts the uses of photographs of dissection/injury that might be ‘graphic’ and thereby could prejudice a jury.

Today CT imaging can be used to sanitise the visual evidence.

But it depends on the evidential question being addressed
Evidential Question: is the hammer a possible weapon

Prejudicial illustration?
Evidential Question: is the hammer a possible weapon

Probative illustration?
Evidential Question: Were there severe head injuries that could have caused bleeding into the environment?

Probative illustration?
The Statement and the Report

• In order to give evidence of your medical opinion in court you must be recognised by the court as an expert in the particular area or specialty involved. (This recognition must be obtained each time you give evidence.)

• The preamble of the report must state:-
  • Your name and professional address
  • Your qualifications and experience
  • Your employment history
  • Your current appointments
  • You should also include any other information that will help the court to decide whether or not you are an expert in a particular field.
The Statement and the Report

• Explain how you came to be involved in this matter.

• Who called you
• When they called you
• Why they called you
• Where you went
• When you arrived
• Who was there
The Statement and the Report

- Tell them what you were told
- Tell them what you asked
- Tell them who gave you information
- Tell them when you were given the information
- Tell them where you were when you were given the information
The Statement and the Report

- Tell them what you DID and why
- Tell them what you did NOT do and WHY not
- Tell them what you observed others do and when and where
The Statement and the Report

• Be descriptive in your observations
• Be objective rather than subjective
• Provide accurate and appropriate measurements
The Statement and the Report

- Detail tests you performed
- Detail all specimens gathered
  - Taken from
  - Taken by who
  - Taken when
  - Taken where
The Statement and the Report

• For a specimen and its test result to be admissible in evidence it must be shown to have been secure and uncontaminated.

• To prove this the court must know who had control of the specimen from the time it is taken to its presentation in court as an exhibit.

• Say WHO you gave it to and WHEN and WHERE you gave it to them
In the Box
Explaining what happened

Using technical knowledge

Research
Training
‘Experience’

"It looks like someone tried to pronounce 'Rorschach' with a mouthful of soup."
Does our science stand up to validation tests
Regulation and Validation

Would our evidence meet the PCAST test?

1. Fundamental validity
2. Application validity
Golden Rule

You can believe me because.........
To be persuasive, we must be believable; to be believable, we must be credible; to be credible, we must be truthful.

~ Edward R. Murrow

idlehearts.com
The Truth, The whole Truth and Nothing but the truth

“If you tell the truth, you don’t have to remember anything.”

Mark Twain
TRUTHFULNESS IS aligning words and actions in accordance with facts. To state without omission or exaggeration.
Other ways of providing oral testimony

Concurrent evidence and the Hot Tub

Put the different experts together in the witness box

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