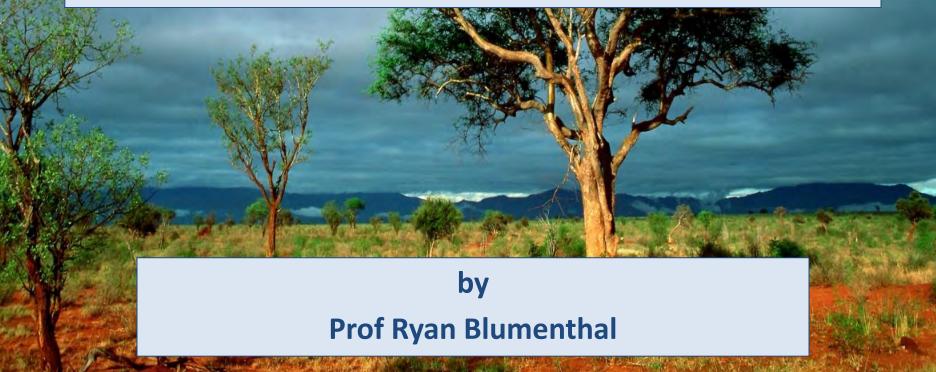
The imperative of mandatory DNA sampling in homicide cases for advancing justice



Disclaimer Slide

- This presentation is intended to facilitate continuing medical education.
- The views expressed in this presentation are those of the presenter and do not necessarily reflect the views of the 3rd DNAforAfrica Forensic Symposium.
 - The 3rd DNAfor Africa Forensic Symposium does not recommend the use of products or equipment in any manner inconsistent with that described in the local package insert.
 - Before using any product or equipment mentioned here-in please refer to the full local prescribing information.
- All invited faculty of CME-designated sessions have been asked to disclose any relationships that, in the context of their presentation, could be perceived by some as a real or apparent conflict of interest. None of the faculty have disclosed any relevant relationships that could be perceived by some as a real or apparent conflict of interest; no faculty will be discussing any off-label or investigational use of drugs/devices.

Why This Topic ?

• This battle is personal.

The philosophy

- It is obvious that even in primitive tribal society there must have been an interest in discovering the causes of death of its members. In particular, a sudden, unexpected or unwitnessed death must have signalled a potential danger, either from within the society by its own members, or by an enemy from the outside.
- (Saukko P, Pollak S. Autopsyy, procedures and standards. In: Jason Payne-James (ed). Encyclopedia of Forensic and Legal Medicine. Oxford: Elsevier, 2005, pp.166-171.)

The philosophy

- Born from the need for justice, legal medicine has had to adapt to a succession of scientific, technological, sociocultural and legal contexts throughout history.
- As a branch of science it is in constant evolution.
- On it depend the *honour and freedom* of people.

The philosophy

- Although there are differences between countries, the philosophy has always remained the same.
- 'The application of medical knowledge and methodology for the resolution of legal questions and problems for individuals and societies'.
- Without good legal medicine there can never be good justice!

FORENSIC MEDICINE – THE LIVING.

FORENSIC PATHOLOGY – THE DEAD.

Major duties of a forensic pathologist

- To determine cause and manner of death.
- To identify the deceased if unknown.
- To collect evidence from the body.
- To document injuries or lack of them.
- To deduce how the injuries occurred.
- To document any underlying natural disease.
- To attend scene of crime.
- To determine or exclude other causes of death.
- To provide expert testimony.

Forensic textbooks in RSA

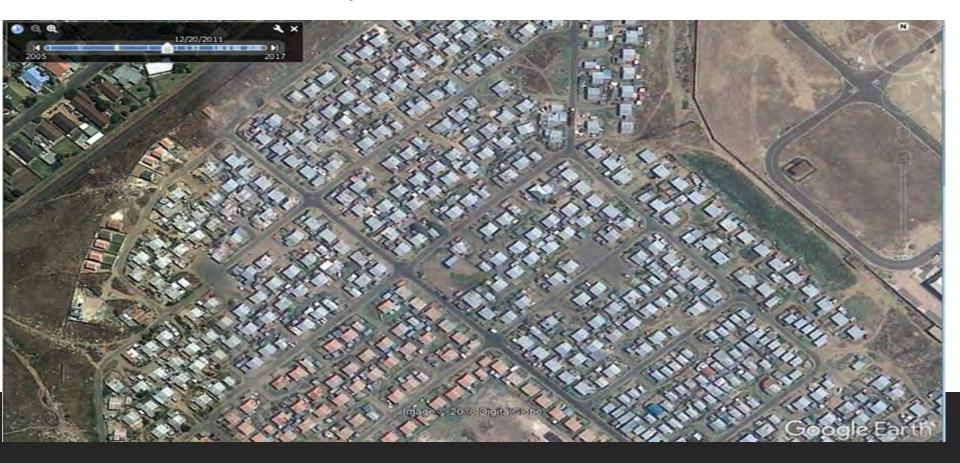
- Schwär, T.G., Loubser, J.D., Olivier, J.D. The Forensic ABC in Medical Practice. Haum Educational Publishers. Pretoria (1988).
- McQuoid-Mason, D.J.; Dada, M.A.. Guide to Forensic Medicine and Medical Law. (1999).

Were written at a time when there were less humans in RSA...

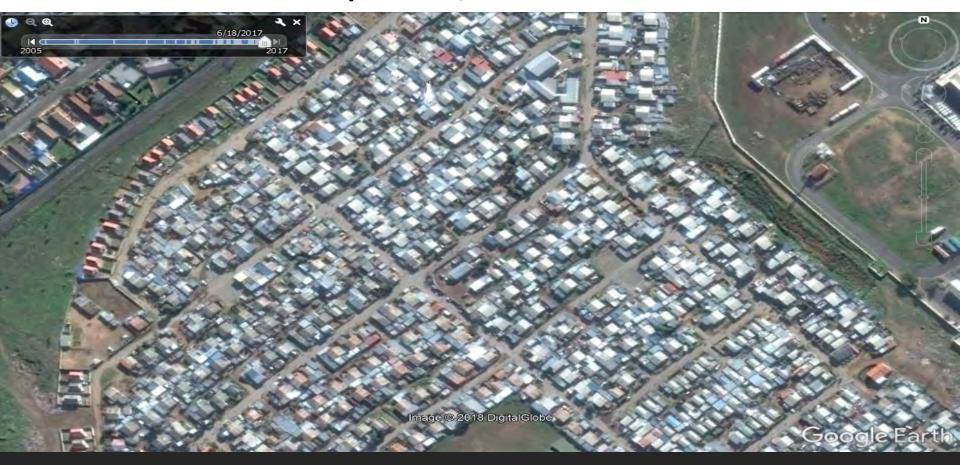
Strong population growth predicted

- Next 15 years.
- Southern Africa
- Eastern Africa.

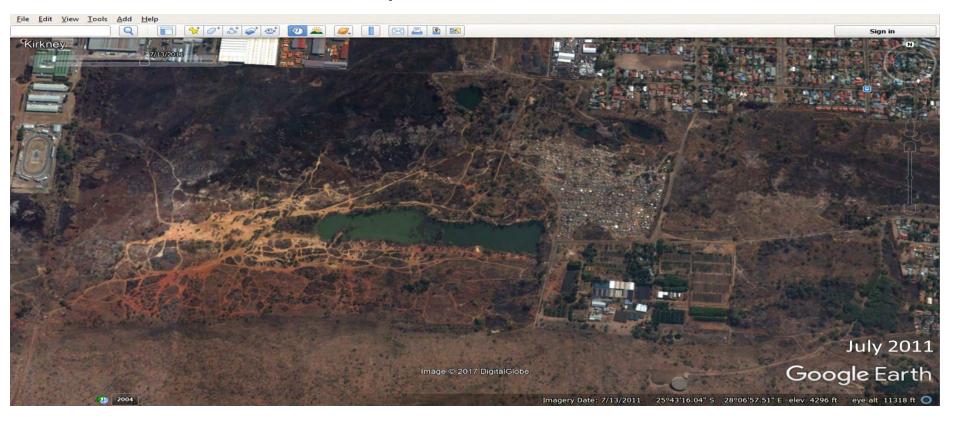
Cape Town, Nomzamo Pilot



Cape Town, Nomzamo Pilot



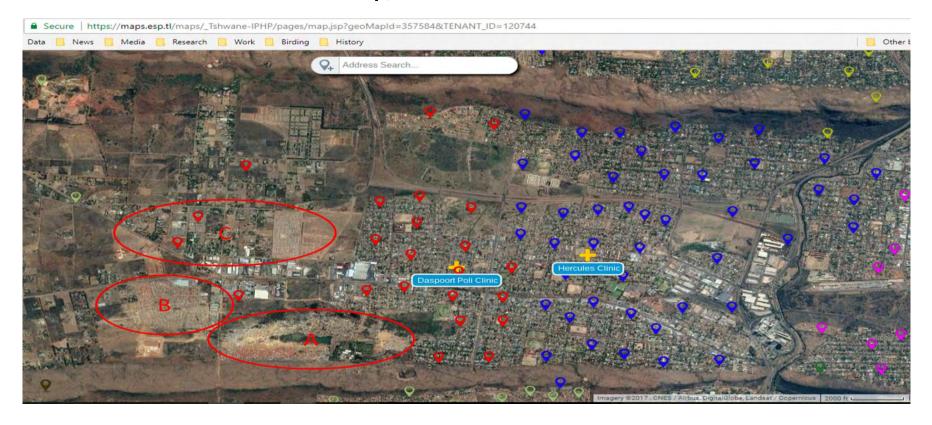
Kirkney, Pretoria - 2011



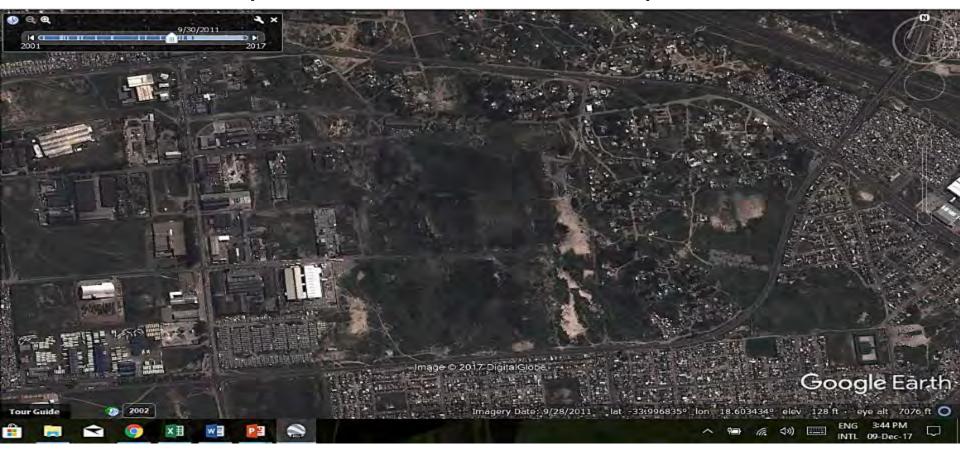
Kirkney, Pretoria - 2017



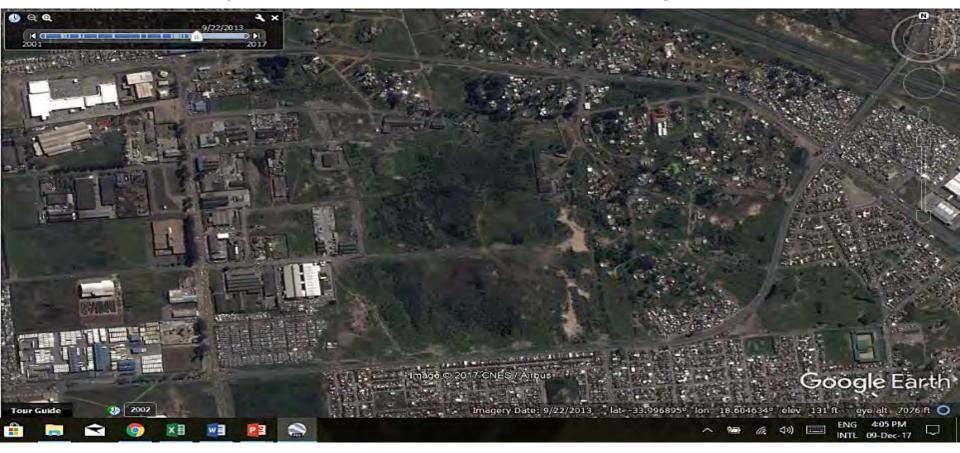
Kirkney, Pretoria - 2017



Cape Town, Crossroads – Sep 2011



Cape Town, Crossroads – Sep 2013



Cape Town, Crossroads – Oct 2015



Cape Town, Crossroads – Oct 2017



The population of south Africa in 1988

• 35,2 million (1988)

Population statistics – South Africa

- 44,90 Million (2000)
- 45,53 Million (2002)
- 46,66 Million (2004)
- 47,73 Million (2006)
- 48.79 Million (2008)
- 49.99 Million (2010)
- 52.51 Million (2012)
- 54.15 Million (2014)
- 55.91 Million (2016)
- 56,00 Million (2018)
- 59.31 Million (2020)
- 61,493,944 as of Wednesday, June 7, 2023,

This means...

• 16 Million extra people last 23 years!

"So, what is the forensic situation in RSA?"



The Forensic Situation in RSA

- South Africa has approximately 61,493,944 (2023).
- Approximately 500 000 natural deaths per year.
- Approximately 70 000 unnatural deaths per year.
- Up to 25 000 homicides per year.
- Up to 15 000 road traffic accidents per year.
- Up to 10 000 suicides per year.
- On average forensic practitioners perform between 400 600 autopsies per year.
- Approximately 70 registered forensic pathologists in South Africa.

Bernitz, H. Kenyhercz, M; Kloppers, B.; L'abbe, E. N; Labuschagne, G.N.; Olckers, A.; Myburgh, J.; Saayman, G.; Steyn, M.; Stuli, K. The History and Current Status of Forensics in South Africa. Chapter 23. The Global Practice of Forensic Medicine. Edited by Douglas H Ubelaker. Publishers: Wiley and Sons. 2015.

The Forensic Pathology Situation (RSA)

- A typical Monday morning in <u>Pretoria-FPS</u> could have 20-30 cases on our list.
- On Monday 8th October 2018, <u>Germiston FPS</u> had <u>76 cases</u> on their list.
- Assuming South Africa remains at 70 000 unnatural deaths per year.
- We need at least <u>155 forensic pathologists in RSA</u> (450 autopsies per year).
- 300 forensic pathologists would be paradise.

Pretoria 2022

	Total				Medical Treatment/					
Month		Month	Accident	Homicide	Procedure	Natural	Suicide	Undetermined	Blanks	Total
January	148	January	31	37	5	10	36	25	4	148
February	150	February	41	39	8	8	31	19	4	150
March	201	March	54	55	s g	11	25	20) 27	201
April	133	April	40	28	8	15	17	21	. 4	133
May	206	May	62	52	11	. 21	29	25	6	206
June	198	June	69	37	10	11	29	42	0	198
July	195	July	54	50	12	. 18	21	39	0 0	194
August	226	August	79	57	5	12	35	37	' 1	226
September	181	September	63	47	12	. 11	16	32	0	181
October	174	October	48	54	. 9	4	29	30	0 0	174
November	209	November	73	50	7	10	29	40	0 0	209
December		December								0
Total to date	2021	Total to date	614	506	96	131	297	330	46	2237

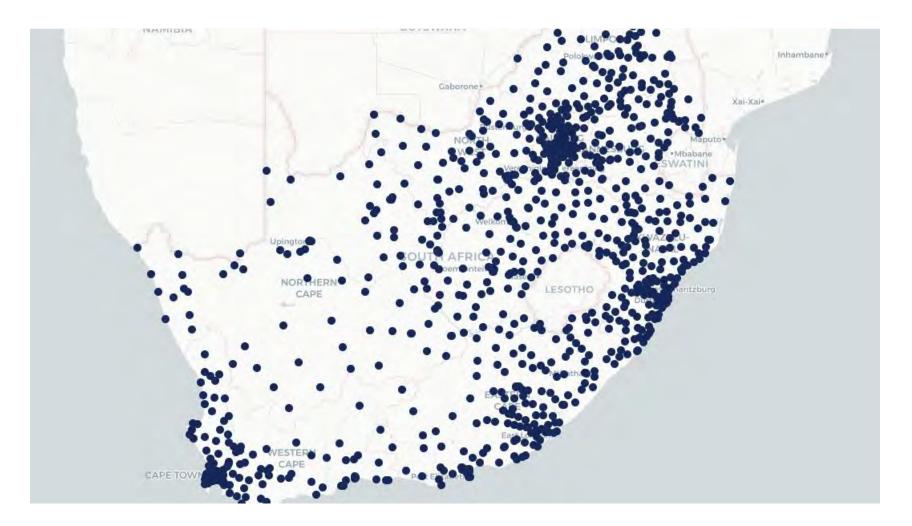
South African Situation

- Eight tertiary academic institutions with Faculty of Health Sciences – producing 1200 medical practitioners annually.
- Approximately 28 000 medical practitioners servicing
 61.45 million people.
- Nine provinces. Gauteng has approximately 12 million people. (KZN 10 million).
- Metropolitan area, highest chance of unnatural death: Cape Town.

It feels like ...

"A lifetime of bearing first hand witness to, on behalf of everyone – courts, relatives, public, society – Man's Inhumanity to Man!" Dr Richard Shepard

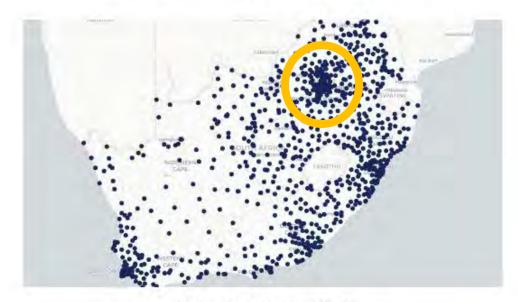
Police stations RSA - 885



Total police personnel - 112 057

Infrastructure for the injuries group

Police stations RSA - 885

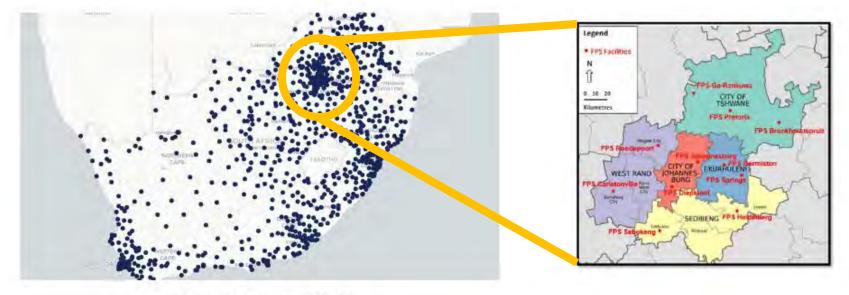


Total police personnel - 112 057

Infrastructure for the injuries group

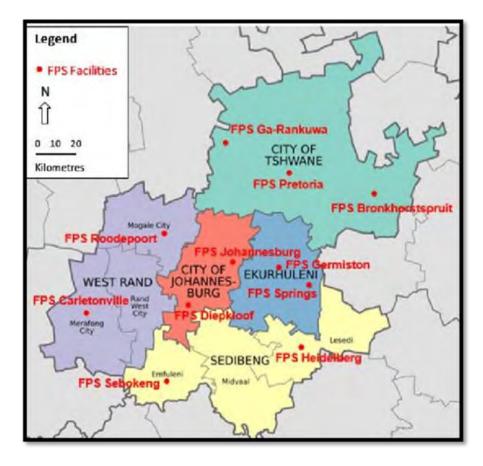
Police stations RSA - 885

11 Forensic Pathology Mortuaries in Gauteng



Total police personnel - 112 057

11 FPS Mortuaries Gauteng



Grading System Mortuaries

Designation	Expected Annual Throughput
M-1	1 - 250 bodies
M-2	1 - 500 bodies
M-3	1 - 1 000 bodies
M-4	1 - 1 500 bodies
M-5	1 – 2 000 bodies
M-6	> 2 000 bodies

Forensic Pathologists

- Eastern Cape 10.
- Free State 16.
- Gauteng 18.
- KZN 11.
- North West 7.
- Western Cape 40.

How many forensic pathologists RSA?

The ideal would be 6 forensic pathologists per million population.

South Africa needs : <u>330 Forensic Pathologists</u>

We need about <u>150 Forensic Pathologists</u> just to play the game!



Original Articles

Pathologist Workforce in the United States

I. Development of a Predictive Model to Examine Factors Influencing Supply

Pathology Services in the USA

- According to National Association of Medical Examiners regulations, Medical Examiners in the USA should perform approximately 250 autopsies per year
- Current pool of pathologists gradually declining
- Anticipated population growth and aging population lead to **net deficit**
- Predict shortage of pathologists by 2030

Robboy et al. Pathologist workforce in the United States: I. Development of a predictive model to examine factors influencing supply. Arch Pathol Lab Med. 2013 Dec;137(12):1723-32



- Shortage of Forensic Pathologists and high workload.
- Need <u>6 Forensic Pathologists per million population (300</u> needed in RSA)
- 60-70 Board Certified Forensic Pathologists in South Africa + performing 400-600 autopsies/year
- Number of Forensic Pathologists in training insufficient to replace the number of pathologists who will retire in the next decade

Saayman G. Death Investigation and Forensic Medicine in South Africa: Historical Perspectives, Status Quo, and Quo Vadis? Academic Forensic Pathology. 2020;10(3-4):115-130 There are many dedicated forensic pathologists in South Africa, working hard under suboptimal circumstances to contribute to the administration of justice.

Nowadays

 There are currently in total between 80 and 90 specialist forensic pathologists on the HPCSA register.

Public versus Private Health RSA

- When 1st and 3rd Worlds Collide.
- Public practice average 1.6 surgeons for every 100 000 population
- Private practice 3.3 surgeons for every 100 000 population (similar to UK values)

Reference:

A.J Dell, et al. Orthopaedic Surgeon Density in South Africa. World Journal of Surgery 2018. Vol. 42



Road Traffic Accidents

- Speeding
- Lawlessness
- Unroadworthy vehicles
- Alcohol: 16% involved in RTA under the influence * (those that were tested)
- Only 20 % wear seatbelts

*Hardcastle et al. Trauma, a preventable burden of disease in South Africa: review of the evidence, with a focus on KwaZulu-Natal. South African Health Review. Vol 2016, No 1

Rising medico-legal claims

- Medical negligence or malpractice claims have been <u>ballooning since about 2007.</u>
- In <u>2020/2021</u>, <u>R6.5bn</u> was awarded in medico-legal claims.

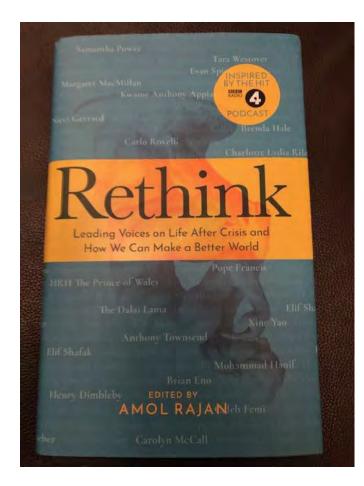
<u>Reference</u>

https://www.medicalbrief.co.za/urgent-need-for-diverse-strategy-to-address-rising-medico-legal-claims/



'Re-thinking'

• Perhaps it is time for a re-think?



Rethink

- Rethink who we are.
- Rethink what we do.
- Rethink how we feel.
- Rethink how we live.
- Rethink how we work.
- Rethink conferences.
- Rethink education.
- Rethink technology.

Fourth industrial revolution

- People expect to be able to <u>work</u>, learn and study whenever and wherever they want to.
- Technologies are increasingly <u>cloud-based</u>, and notions of IT support are decentralised.
- The world of work is increasingly <u>collaborative</u> and is driving changes in the way student learning and projects are structured.
- The abundance of resources/relationships via the <u>internet</u> are increasingly challenging educators to <u>revisit their roles</u>.
- Education paradigms are shifting to include online learning, hybrid learning and collaborative models such as <u>blended</u> <u>learning</u>.

New Developments

Nowadays

- Extraordinary progress recent years has enabled the judicial system to become faster and more efficient.
- Decisions are now *more scientifically grounded*.

Devastating New Technology

- Drones.
- New facial recognition software.
- Laboratories on a chip (....DNA?)
- Homicide by cell phone.

New Developments

Curing the sick versus upgrading the healthy.

(Prophylactic mastectomy with bilateral oophorectomy and hysterectomy)

New Developments

- Mortuaries of the Future.
- PNIVA Post Mortem Non-Invasive Virtual Autopsies.
- MRI's and CT's.
- Essential versus non-essential autopsies.



High Court rejects gynae's appeal against 5-year's jail for deadly negligence

📋 APRIL 24TH, 2019 🛛 🖕 A FOCUS, BREAKING NEWS, MEDICO-LEGAL

The Gauteng High Court (Pretoria) has confirmed the conviction and sentence of five years direct imprisonment for Dr Danie van der Walt, a gynaecologist who caused the death of a woman in labour through negligence. The Health Professions Council of SA had ordered Van der Walt to pay a R10 000 admission of guilt fine and he had appealed the jail sentence as 'shockingly inappropriate'.

The rejection of gynaecologist Van der Walt's appeal could be the "last straw" for a profession already under siege, experts warn. Van der Walt has announced that he will now approach the Supreme Court of Appeal.



Dr Danie van der Walt. Photo: Witbank News

A Chilling Message

- Professor Leon Snyman of the SA Association for Obstetricians and Gynaecologists says the verdict sends a chilling message for doctors attending to labour cases.
- He says the insurance premium for obstetricians is R1m a year and doctors practising in this field must deliver 24 babies per month just to cover their insurance fees. 'Now one of our members get sent to prison for a basic human error.'

MEDICAL Brief

Africa's Medical Media Digest

NORTON ROSE FULBRIGHT

The man who couldn't die

->



Warrants of arrest issued for paediatric surgeon and anaesthetist

DECEMBER 11TH, 2019 SOUTH AFRICA

Warrants of arrest have been issued for paediatric surgeon Dr Peter Beale and anaesthetist Dr Abdulhay Munshi, reports News24. Beale and Munshi are accused of negligence and face culpable homicide charges in connection with a routine laparoscopic surgery performed on 10-year-old Zayyaan Sayed in October, at Netcare's Park Lane Clinic in Johannesburg, Zayyaan's lung collapsed shortly after the surgery. He was taken to the intensive care unit but died not long after. The report says Zayyaan's father, Mohammadh Sayed, laid the charges in October.

"Johannesburg – Minister of Health Dr Zweli Mkhize said he was shocked and dismayed at the "brutal murder" of Joburg anaesthetist Dr Abdulhay Munshi who died in a hail of bullets on Wednesday."

It is believed that the 57-year-old doctor and his colleague, Professor Peter Beale, had received death threats before the former's suspected assassination.

The Thabo Bester Case

- Thabo Bester, convicted criminal, escaped from Mangaung Correctional Centre in South Africa after faking his death in 2022.
- He was believed to have died by selfimmolation in his prison cell in May 2022 and was at large for a year until a new postmortem investigation revealed that the burnt body found in his cell was not his.



Esidimeni debacle

- A large number of mentally handicapped patients from a private health care facilities.
- Hundreds of these patients (for whom the state had a duty of care) were being treated at a private mental health care hospital in terms of a contract between the state and the private health care provider.
- However, in order to save costs, hospital and the Provincial Department of Health (at short notice and against the advice of various parties) decided in mid-2015 to terminate the contract and to relocate the patients to multiple smaller, often unlicensed and poorly staffed or equipped centers.
- Sadly, this resulted in the premature and often undignified demise of some 150 of these most vulnerable patients within a matter of months of their removal from the private special care facility.



Medical malpractice

- The case of the heart-lung bypass machine which sucked air. Patient suffered hypoxic ischaemic encephalopathy post-op.
- The case of the tonsillectomy. Child woke up with fourth degree burns back of knees.
 Diathermy case.
- The case of the orthopaedic operation. Patient had testicular necrosis post-operation.
- The case of the missing tumour!

A Crafty Case of Fraud

A R10 Million Rand Case

C. CERTIFICATE BY MEDICAL PRACTITIONER/ FORENSIC PATHOLOGIST

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C. CERTIFICATE BY MEDICAL PRACTITIONER/ FORENSIC PATHOLOGIST

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Dr. Ryan Blumenthal MBChB(Pret) MMed (Med Forens) Pret FC For Path(SA) Dip For Med(SA) PhD(Wits) MP0508136

Dr R Blumenthal MBChB (Pret) MMed(Med Forens)Pret FC For Path(SA) Dip For Med(SA) PhD(Wits) Senior Specialist Forensic Pathology Service (Pretoria) P/Bag X323, ARCADIA, 0007 Tel: 012 - 323 5298 Samuels A. The Rachell Nickel case: reflections on the significance. Med Sci Law 2012; 52: 181-183. DOI: 10.1258/msl.2011.011095

The Rachel Nickell Case: Lessons for South Africa

by Prof Ryan Blumenthal



The Rachel Nickel case

 On 15 July 1992, Rachel Nickell, aged 24, was walking with her two-year-old son Alex on Wimbledon Common in broad daylight. She was attacked, stabbed 49 times and died at the scene. A young man, Colin Stagg, was suspected, brought to trial in 1994 and acquitted for lack of evidence. Subsequently, a 'cold review' of the case was conducted, resulting, on 18 December 2008, in the manslaughter conviction on a guilty plea for the killing by Robert Napper.

Samuels A. The Rachel Nickell case: reflections on the significance. *Medicine, Science and the Law.* 2012; 52: 181-183.



Rachel Nickel





Colin Stagg



Robert Napper



Sir Alec Jeffries

Sir Alec John Jeffreys

- Sir Alec John Jeffreys, (born 9 January 1950).
- British geneticist known for developing techniques for genetic fingerprinting and DNA profiling which are now used worldwide in forensic science to assist police detective work and to resolve paternity and immigration disputes.

DNA testing

- Jeffreys's DNA method was first put to use in 1985 when he was asked to help in a disputed immigration case to confirm the identity of a British boy whose family was originally from Ghana.
- The case was resolved when the DNA results proved that the boy was closely related to the other members of the family, and Jeffreys saw the relief in the mother's face when she heard the results.

The Rachel Nickel case

- The DNA material which was found could not be tested and analysed by means of contemporary technology in 1992.
- Subsequently, improved techniques in 2004 enabled DNA to be identified, from retained specimens, identifying Napper.



The Rachel Nickell Case: A Masterclass in DNA

Lessons for Africa

Keep the stuff??

- Following the trial, conviction or acquittal, should the stuff be kept, and if so for how long?
- Today all records and most material can be kept indefinitely, and in good or accessible or usable condition.

Keep the stuff??

- Although this involves space, management and cost, in the vast majority of cases it will prove to be unnecessary because the decision in the trial and appeal will be final and never re-opened.
- The problem lies in anticipating.

Keep the stuff??

- Criminal Evidence Act. UK. 2003 s 75-97.
- It may be possible to discover new and compelling evidence sufficient to secure the quashing of an acquittal and a retrial many years after the acquittal.
- All the 'innocent' parties in the tragedy suffered grievously in psychological, psychiatric and other traumatic ways, and sought compensation.
- For the principles for compensation for those wrongly convicted see *R* (Adams) v Secretary of State for Justice [2011] UKSC 18, Criminal Justice Act 1988 S 133.



THE SEVEN MISSED CHANCES

In October 1989 Robert Napper tells his mother he has raped a woman. She calls police about the attack two months earlier in Plumstead where he leaves traces of DNA. She says it was on the Common when in fact it was in a house. Police check shows no attacks on the Common and Napper is never Interviewed and no DNA sample taken.

2 1992. In four months Napper attempts to rape two women and rapes another. By the time an e-fit is issued in August, he has already killed Rachel Nickell. A neighbour calls police to say Napper matches the rapist's description. Police arrange for him to give a sample of saliva and blood but he doesn't turn up. He also misses a second appointment but police do nothing. **3** That year another caller identifies the rapist e-fit as 'Bob Napper' but he is eliminated from the investigation as he is over 6ft. Even though one of the victims initially tells police her attacker was 6ft 3in.

Police arrest Napper for possession of a firearm and ammunition without a certificate also in 1992. They discover an A-Z map at his home marked with the locations of some of the rapes. However, Napper is just prosecuted for the firearm offence.

5 In early 1993 he is stopped by police after being seen climbing the wall of a young mother's home. He persuades them he had been out for a walk and was allowed to go.

6 That year a tin containing a gun is found on Winns Common, in Plumstead. Nappers fingerprints are identified but police do nothing. In November 1993 he kills Samantha Bisset and daughter Jazmine.

A sample taken from Rachel Nickell is returned by analysts at the Forensic Science Service in 2001 with no DNA match. In fact, the test is faulty and only three years later, when it is re-tested, is the link with Napper finally established.



Lizzy James

Compensation

- The child Axel Nickel £90 000-00.
- The biological father Not yet announced.
- 'Lizzie James' Police woman £125 000-00.
- Stagg £706 000-00.
- Grandparents of Alex, the parents of Rachel, experienced difficulty over access. Alex lived abroad, contact virtually ceased, and they were not entitled to any financial compensation.



The Judge

- Must understand police methods.
- Must understand the current law of admissibility.
- Must understand scientific evidence (DNA).
- Must facilitate conviction of the guilty.
- Must facilitate the acquittal of the innocent.
- (Not responsible for conduct of police, prosecution, forensic service and witnesses)

In Summary:

- We live in an increasingly litigious world.
- Ideally, store everything for perpetuity.
- Costs versus benefits?
- Medico-legal aspects to consider.
- Virus / prion / infective agents to consider.
- Genetic aspects to consider.

Knowing this..

- Mandatory DNA testing of <u>ALL homicide</u> cases.
- (Latest stats show 70 homicides per day in South Africa).
- Therefore we are looking at <u>70 DNA cases per</u> <u>day.</u> (Multiply by 365 days).
- We need to perform <u>25 550 DNA tests / year</u> South Africa.
- This is where it starts...

Mandatory DNA testing

- In the <u>pursuit of truth</u> in the world of forensic pathology.
- Such a step will take courage and integrity.
- We have to do it in the name of:
- We owe it to both the dead and the living, in the name of <u>Reasonableness and Respect.</u>

Mandatory DNA testing

- Perhaps a 'victims database'?
- Perhaps FTA cards?

