

Form 25
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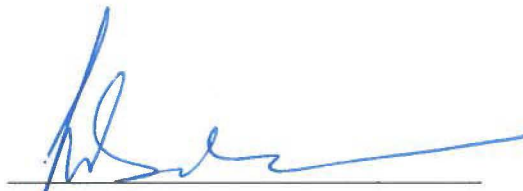
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COURT FILE NUMBER	2001-14300
COURT	COURT OF QUEEN'S BENCH OF ALBERTA
JUDICIAL CENTRE	CALGARY
APPLICANT	REBECCA MARIE INGRAM, HEIGHTS BAPTIST CHURCH, NORTHSIDE BAPTIST CHURCH, ERIN BLACKLAWS and TORRY TANNER
RESPONDENTS	HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF ALBERTA and THE CHIEF MEDICAL OFFICER OF HEALTH
DOCUMENT	EXPERT REPORT
ADDRESS FOR SERVICE AND CONTACT INFORMATION OF PARTY FILING THIS DOCUMENT	Alberta Justice, Constitutional and Aboriginal Law 10 th Floor, 102A Tower 10025 -102A Avenue Edmonton, Alberta T5J 2Z2 Attention: Nicholas Parker and Nicholas Trofimuk Tel: (780) 643-0853 Fax: (780) 643-0852

EXPERT REPORT OF DR THAMBIRAJAH BALACHANDRA

1. My name is Dr Thambirajah Balachandra. I am the Chief Medical Examiner in Alberta.
2. I have been asked by the Respondents to provide my opinion in response to the expert report of Dr Martin Koebel.
3. The substance of my opinion, including the information and assumptions upon which my opinion is based, is contained in **Schedule A**.
4. My qualifications and background are set out in my Curriculum Vitae, attached hereto as **Schedule B**.

 July 2021


Dr Thambirajah Balachandra

Schedule A

INTRODUCTION

The three-page document prepared by Dr. Koebel questions the validity of COVID-19 death statistics without adequate autopsies and whether COVID-19 was the primary cause of, or contributing factor to these deaths. The following explains how cause of death is determined and how it is applied to the COVID-19 situation.

Cause of death is a medical opinion determined by a medical doctor based on medical findings or reasons for the death. The written format of the death certificate (DVS) is structured by the Department of Vital Statistics across regional, national and international jurisdictions, based on the World Health Organization and International Classification of Diseases Guidelines. It is composed of two (2) parts.

Death Certificate

Part 1 (Immediate Cause of Death)

The first part has three or four divisions. This part deals with only one disease that is immediately and primarily responsible for the death. The three or four divisions refer to the steps leading to death due to that one disease. For example, the immediate cause of death may be a ruptured heart. The rupture may be due to acute myocardial infarction (i.e., heart attack). The acute myocardial infarction may be due to atherosclerotic coronary artery disease (i.e., build-up of cholesterol on the inner wall of the artery taking blood to the heart muscle itself).

Part 2 (Contributing Causes)

Part two deals with any other diseases that contributed to the cause of death but are not causally related to the disease that primarily caused the death (i.e., the disease mentioned in part one). Medical conditions that have nothing to do with the death are not mentioned in the death certificate.

Example 1 – non-contributing conditions present at the time of death (not listed in Part 2)

In the above example, the patient may have had cancer of the colon or breast, but it did not contribute to the cause of the death. Therefore, the cancer must not be mentioned in part two of the cause of death.

Example 2 –contributing conditions present at the time of death (listed in Part 2)

In another example, an elderly male with severe breathing difficulty such Chronic Obstructive Pulmonary Disease (COPD) meets with a vehicular accident, sustains fractures of a few ribs and is admitted to the hospital. His breathing difficulty worsens and he dies. Here, two different processes caused the death. Even though he had breathing difficulty before the accident, he would not have died on that day, if not for the accident. Similarly, a same aged person with no respiratory difficulty who sustains the same rib fracture would have survived.

In this example, a decision is required on which of COPD or fracture of the ribs caused the immediate death (part one) and which contributed to the cause of death (part two). This is a clinical judgement based on the symptoms, signs, X-ray findings and laboratory studies. Autopsy is unlikely to resolve the



issue. In the above case, if the patient also had heart disease that also could have contributed to the cause of death, this too could be referenced in part two of the cause of death statement. Whether to include the heart disease in part two depends on the severity of the heart disease and it is a clinical judgement.

Summary (using COVID-19 as an example)

In summary, if COVID-19 is primarily responsible for causing the death, then COVID-19 will be listed in Part 1. If COVID-19 is not related to the primary cause of death, but still causally contributed to the death (i.e. the death would not have occurred but for COVID-19), then COVID-19 will be listed in Part 2. If COVID-19 was present at the time of death, but did not cause or did not causally contribute to the death, then COVID-19 will not be listed in the death certificate at all.

This same criteria is used for determining and recording all deaths in Alberta (whether COVID-19 is a factor or not).

Medical Determination of Cause of Death in Alberta

Looking at COVID-19 deaths globally, it is factually known that some people are testing positive for COVID-19 and some develop symptoms of respiratory illness. If a previously healthy adult male gets fever, cough, malaise and remembers having been in contact with a person with COVID-19, he would normally go to a hospital. At the hospital, medical staff would obtain the history of his illness, do a physical examination, take a chest X-ray and do blood tests. They will also send blood and samples of respiratory secretions for microbiology studies and detection of viruses including the causative virus for COVID-19.

In addition to the specific tests related to the clinical presentation, the doctor would do a battery of laboratory tests, Electrocardiogram, etc., often repeatedly to ensure there are no other diseases such as, but not limited to, diabetes, hypertension, immune diseases and heart problems. In North American hospitals, these tests are readily accessible and used.

If a test confirms that he is COVID-19 positive and his symptoms worsen, he would be admitted to the hospital. There is no antiviral drug for COVID-19 at this time. Therefore, he would be treated symptomatically in the hospital. He may be in the ordinary ward of the hospital and may get well and go home, or his symptoms may get worse and he may be admitted to the intensive care unit, recover and go home.

In spite of all the tests and all the supportive treatment, some patients may die. If so, there would be no doubt that this person died due to, or as a complication of or as a consequence of, COVID-19. Therefore, the clinician treating this person is justified in determining the cause of death as COVID-19. Based on these circumstances, the clinician may also give the cause of death as Acute Respiratory Distress Syndrome due to COVID-19, or Pneumonia due to COVID-19 or COVID-19 Pneumonia. The bottom line is that the person died because of COVID-19. It would not be an effective or efficient use of medical resources to undertake an autopsy in such cases or these types of cases.

In the above COVID-19 patient, if he died any time before the diagnosis of COVID-19 disease, the clinician would report the case to the Medical Examiner (ME) and would not give the cause of death. If



that happens, the ME would bring in the body, review all the clinical notes and request all the results of the tests ordered. If the test for the COVID-19 virus reveals a positive result and the chest x-ray, either ante mortem or post-mortem, shows Pneumonia and if there are no other concerns, the ME will give the cause of death as Pneumonia due to COVID-19. If there is a necessity to release the body before the COVID-19 tests results are available, or if the result is negative, the ME will proceed with an autopsy.

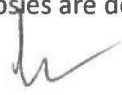
In contrast to the above-mentioned healthy adult male who contracted COVID-19, let us take the case of an elderly person with comorbidities such as heart failure, diabetes mellitus, leukaemia and renal failure. When such patients develop COVID-19 illness and die, the clinician will have to decide which disease caused the immediate death and which diseases contributed to the cause of death. This is a clinical judgement based on the presentation and other tests. It is best left to the clinician, provided the clinician was able to do all the necessary tests. If not, the case must be referred to the Office of the Chief Medical Examiner.

Though it is ideal to do autopsies in all sudden deaths, it is neither necessary nor practical to do so. If a clinician is convinced of the cause of death of his patient and the cause is natural, the clinician's responsibility is to fill the death certificate giving the cause of death. Such cases are not reportable to the Medical Examiner. Only when the clinician is unable to determine the cause of death, the death is reported to the Medical Examiner. In deaths due to COVID-19, the clinician would have enough evidence to arrive at the cause of death. Therefore, no autopsies are requested in such cases.

The College of Physicians and Surgeons of Alberta (CPSA) included a section on filling death certificates for COVID-19 in their newsletter to Physicians dated December 14, 2020 (see attached).

Who, When, and Where autopsies are done in Alberta (same in other parts of North America)

A full autopsy, meaning opening chest, abdomen, and head, removing all the organs from the body, individually checking each organ, and doing histological, toxicological, and microbiological tests, is an intrusive process. Furthermore, if necessary, other parts of the body, such as limbs, face, and spinal cord may also be dissected, if necessary. Ordinary people and those of certain religious beliefs often resent and object to autopsies being performed on their loved ones. Therefore, autopsies are done either under legal authority under the *Fatality Inquiries Act* in Alberta (or the Coroner's Act in a jurisdiction under the Coroner system) or with the expressed consent of the next of kin of the decedent. The Medical Examiner (or the Coroner in other jurisdictions) has the authority to get an autopsy done to fulfil their mandate. If a death is not reportable to a Medical Examiner (or a Coroner depending on the jurisdiction), the doctor who treated the decedent or under whose care the decedent was, may seek an informed written consent from the next of kin for an autopsy. This is commonly referred as the hospital autopsy. In such cases, the next of kin may give consent for full or partial autopsy, research purposes, educational activities, and of course finding the nature, extent, and the effects of treatment. If a death is reportable to the Medical Examiner, the hospital autopsy can only be done if the Medical Examiner declines to order the autopsy. The Medical Examiner ordered autopsies are done either at the Calgary or at the Edmonton Office of the Chief Medical Examiner. Hospital autopsies are done at the hospital mortuaries by the hospital pathologists where facilities are available.



Issues raised by Dr. Koebel

1. What are the Most Important Considerations for Understanding COVID-19 Death Statistics?

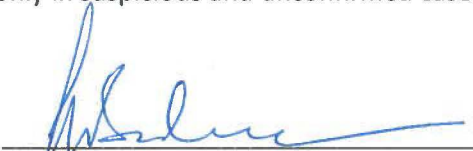
If COVID -19 is mentioned in Part one, the primary cause of death is COVID-19. If other diseases are mentioned in part two, these conditions contributed to the cause of death.

If COVID-19 is mentioned in part two, then COVID -19 contributed to the cause of death. The primary cause of death would be in part one.

2. What is the importance of Autopsies in Relation to COVID-19 Death Statistics?

Clinicians, having knowledge about the clinical presentation, contact history, physical findings, X ray of the chest, laboratory tests and the progression of the disease are in a better position to diagnose the condition. If the patient dies, the clinician treating the patient would be able to give a cause of death with certainty. An autopsy would be necessary only in suspicious and unconfirmed cases.

07 July 2021


Dr Thambirajah Balachandra

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Physician' Notes: Basic Principles on Medical Death Certification

[Go back to Messenger](#)

December Messenger 2020, From Physicians | Posted December 14, 2020

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By Dr. Enrico Risso,

Forensic Pathologist, Deputy Chief Medical Examiner

Physicians perform the final act of care for a patient and their family by completing the medical portion of the death certificate, providing a service for the larger community. The death certificate is a legal document required for burial or cremation of the body, and it must be completed within 48 hours of death. The death certificate is a crucial document for disease surveillance and future planning.

Physicians must be familiar with federal and provincial regulations on medical certifications for death without medical attendance, or unnatural deaths that may require the physician to report the case to the Medical Examiner. Deaths that should be reported to the Medical Examiner are listed on the back page of every death certificate.

If completed properly, a death certificate will communicate the same essential information as a case history. If the cause of death is not properly certified, the document may be ambiguous and the physician may be required to amend the death certificate or provide additional information.

When completing a death certificate, the physician should use the correct death certification form designated by the province and write the cause of death in a legible way, avoiding abbreviations and acronyms (e.g., ACVD, HTN, DM, CVA etc.).

The generic format of a death certificate in Alberta consists of two major parts: respectively named **Part I**, normally divided in three different lines (a, b and c) that should be filled from top to bottom, completing lines as needed, and **Part II**.

Part I refers to the primary and immediate cause of death, that is to say the underlying disease (condition) that initiated the chain of morbid events leading to death. **Part II** refers to the conditions contributing to death but not resulting in the underlying cause of death stated above, and should not be used as a repository of conditions that contributed to the cause of death.

After the World Health Organization (WHO) declared COVID-19 a pandemic with increasing mortality, the importance of correctly certifying COVID-19-related deaths is crucial. In view of the public health importance of this infection, when it is thought to have caused death, or is assumed to have caused or contributed to death, it should be recorded in **Part I** of the medical cause of death. A specification of the causal sequence leading to death (e.g., acute respiratory distress syndrome, or pneumonia) is also important.

The use of official terminology, as recommended by the WHO (i.e., COVID-19), should be used for all certification of this cause of death.

As there are many types of coronaviruses it is recommended not to use "coronavirus" in place of COVID-19. This will help to reduce uncertainty for coding and monitoring these deaths which may lead to underreporting.

If a definite diagnosis cannot be made, but the circumstances are compelling within a reasonable degree of certainty, it is acceptable to report COVID-19 on a death certificate as "presumed" or "probable."

On a generic model form, a typical death certification should look as follows:

Medical Certificate of Death			<i>Approximate interval between onset and death</i>
Medical Cause Of Death	Part 1 Immediate Cause of death giving	For example see back of form (a) <u>Acute respiratory distress syndrome</u>	2 days
	Antecedent Cause(s) if any, next	due to (or as a consequence of) (b) <u>Pneumonia</u>	10 days
	state the Underlying Cause last	due to (or as a consequence of) (c) <u>COVID-19</u>	10 days
	Part 2 Other Significant Causes contributing to death but not causally related to the immediate cause (a) above		

Patients with pre-existing chronic conditions or a compromised immune system due to physical disability are known to be at higher risk. Therefore, conditions such as chronic bronchitis and emphysema, atherosclerotic coronary artery disease or diabetes mellitus should be listed in **Part II** as significant contributory factors (see below).

Medical Certificate of Death			Approximate interval between onset and death
Medical Cause Of Death	Part 1 Immediate Cause of death giving	For example see back of form (a) Acute respiratory distress syndrome	2 days
	Antecedent Cause(s) if any, next	due to (or as a consequence of) (b) Pneumonia	10 days
	state the Underlying Cause last	due to (or as a consequence of) (c) COVID-19	10 days
	Part 2 Other Significant Causes contributing to death but not causally related to the immediate cause (a) above Coronary Artery Disease, Type 2 Diabetes, Chronic Obstructive Pulmonary Disease		

Medical Certificate of Death			Approximate interval between onset and death
Medical Cause Of Death	Part 1 Immediate Cause of death giving	For example see back of form (a) Acute respiratory distress syndrome	2 days
	Antecedent Cause(s) if any, next	due to (or as a consequence of) (b) Pneumonia	10 days
	state the Underlying Cause last	due to (or as a consequence of) (c) COVID-19	10 days
	Part 2 Other Significant Causes contributing to death but not causally related to the immediate cause (a) above Cerebral palsy.		

Schedule B

CURRICULUM VITAE

NAME: Thambirajah Balachandra, MBBS, FRCPC, FCAP

ADDRESS: 7007-116 Street
Edmonton, AB, T6H 5R8
Canada

Bus: (780) 427-4987

Fax: (780) 422-1265

E-mail: Thambirajah.balachandra@gov.ab.ca

MARITAL STATUS: Married

CITIZENSHIP: Canadian

PROFESSIONAL QUALIFICATIONS:

Founder Designation (Subspecialty in Forensic Pathology) from Royal College of Physicians and Surgeons of Canada	2011
Forensic Pathology (ABP)	1994
FLEX	1993
FCAP (AP)	1991
FRCPC	1991
LMCC	1990
FMGEMS	1989
MCCQE	1987
MCCEE	1984
ECFMG	1971
MBBS (Ceylon)	1971

PROFESSIONAL REGISTRATION:

Ceylon (Sri Lanka) Medical Council
General Medical Council of U.K. (Status – Registered without a license to practice.)
College of Physicians and Surgeons of Saskatchewan
College of Physicians and Surgeons of Alberta

PROFESSIONAL APPOINTMENTS:

Dec 08, 2020 – Present

Chief Medical Examiner
Office of the Chief Medical Examiner
Edmonton, AB

Mar 5, 2020 – Dec 07, 2020

Acting Chief Medical Examiner
Office of the Chief Medical Examiner
Edmonton, AB

July 3, 2018 – Mar 4, 2020	Assistant Chief Medical Examiner Office of the Chief Medical Examiner Edmonton, AB
Nov 24, 2017 – May 19, 2018	Locum Regional Forensic Pathologist Auckland District Health Board Christchurch, New Zealand
May 10, 2017 – Oct 6, 2017	Locum Forensic Pathologist Office of the Chief Coroner, Saskatchewan
Sep 05, 2016 – Mar 1, 2017	Locum Regional Forensic Pathologist Auckland District Health Board Auckland, New Zealand
July 1, 2016 – Nov 24, 2017	Medical Examiner Manitoba Justice, Winnipeg, Manitoba
July 1, 1999 – June 30, 2016	Chief Medical Examiner Manitoba Justice Department, Winnipeg, Manitoba
July 1, 1998 – June 30, 1999	Acting Chief Medical Examiner Manitoba Justice Department, Winnipeg, Manitoba
April 1, 1992 – June 30, 1998	Pathologist St. Boniface General Hospital, Winnipeg, Manitoba
July 2, 1991 – March 31, 1992	Pathologist Westman Regional Laboratory Services, Brandon, Manitoba

UNIVERSITY APPOINTMENTS:

November 6, 2018 – Present	Associate Clinical Professor Department of Laboratory Medicine and Pathology Faculty of Medicine and Dentistry, University of Alberta Edmonton, Alberta
July 1, 1999 – June 30, 2018	Associate Professor of Pathology Faculty of Medicine, University of Manitoba Winnipeg, Manitoba
July 1, 1993 – June 30, 1999	Assistant Professor of Pathology Faculty of Medicine, University of Manitoba Winnipeg, Manitoba

COMMITTEE INVOLVEMENT:

2019 – Present	<i>Member</i> Forensic Pathology Residency Competence Committee, Department of Laboratory Medicine and Pathology, University of Alberta
2013 & 2014	<i>Chair (2 years)</i> Conference of Chief Coroners & Chief Medical Examiners of Canada
2008 – 2013	<i>Chair, Examination Board for Forensic Pathology (5-year term)</i> Royal College of Physicians and Surgeons of Canada
2007 – 2012	<i>Nucleus Member, Specialty Committee in Forensic Pathology</i> Royal College of Physicians and Surgeons of Canada
2007 – 2011	<i>Nucleus Member, Specialty Committee in Anatomical Pathology</i> Royal College of Physicians and Surgeons of Canada
2004 – 2007	<i>Member, Working Group in Forensic Pathology</i> Royal College of Physicians and Surgeons of Canada
2003 – 2005	<i>Pathology Headship Search Committee, Faculty of Medicine</i> University of Manitoba & Diagnostic Services of Manitoba
2002 – 2004	<i>Author Group, Clinical Practice Guideline Program</i> <i>(Guideline 903 – Infants Dead on Arrival)</i> College of Physicians & Surgeons of Manitoba
2002 – 2004	<i>Author Group, Clinical Practice Guideline Program</i> <i>(Guideline 1601 - DNR and Supportive Treatment Orders)</i> College of Physicians & Surgeons of Manitoba
2001- 2004	<i>Author Group, Clinical Practice Guideline Program</i> <i>(Guideline 1687 – Investigation of Stillbirths)</i> College of Physicians & Surgeons of Manitoba
2001 – 2003	<i>Author Group, Clinical Practice Guideline Program</i> <i>(Guideline 108 – Arrangements for Expected Death at Home)</i> College of Physicians & Surgeons of Manitoba
2000 –2002	<i>Interdepartmental Working Group on Abuse of the Elderly</i> Province of Manitoba
2000 – 2002	<i>Working Group on The Fatality Inquiries Act (section 10)</i> Province of Manitoba

2000 – 2001	<i>Represented Pathology Department on Review and Implementation Committee for the Report of the Manitoba Pediatric Cardiac Surgery Inquest (May 2001)</i>
1999 – 2001	<i>DNA Monitoring Committee</i> Province of Manitoba
1998 –2016	<i>Chair, Children’s Inquest Review Committee</i> <i>Chair, Adults’ Inquest Review Committee</i> <i>Chair, Geriatric Inquest Review Committee</i> Office of the Chief Medical Examiner, Manitoba Justice
1998	<i>Search Committee for Neuropathologist, Department of Pathology</i> Faculty of Medicine, University of Manitoba

POSTGRADUATE TRAINING:

July 1, 1986 – June 30, 1991	Resident, Anatomic Pathology Faculty of Medicine, University of Manitoba Winnipeg, Manitoba (Chief Resident, 1989 – 1990)
August 1, 1981 – March 31, 1984	Postgraduate Trainee Forensic Medicine and Pathology Postgraduate Medical Institute Colombo, Sri Lanka
April 12, 1972 – October 11, 1972	Intern House Officer Department of Pediatrics, Base Hospital Matara, Sri Lanka
October 12, 1971 – April 11, 1972	Intern House Officer Department of General Surgery, Base Hospital Matara, Sri Lanka

OTHER APPOINTMENTS:

January 1993 – June 1998	Consultant Pathologist Assiniboine Clinic Laboratory Winnipeg, Manitoba
April 4, 1977 – July 31, 1981	Judicial Medical Officer Anuradhapura, Sri Lanka

October 12, 1972 – April 3, 1977

District Medical Officer
Medawachchiya, Sri Lanka

PROFESSIONAL MEMBERSHIPS:

American Academy of Forensic Science (Fellow,
Pathology/Biology Section, AAFS)
College of American Pathologists
Medico-Legal Society of Sri Lanka
National Association of Medical Examiners
Royal College of Physicians and Surgeons of Canada

ABSTRACTS:

1. A.T. Balachandra; B.A.W. Balasooriya; D.N. Athukorale; C. Selvie Perera; and K.D. Henry. *Chronic Arsenic Poisoning in Opium Addicts in Sri Lanka*. 96th Anniversary Academic Sessions of the Sri Lanka Medical Association, Colombo, Sri Lanka, March 23-27, 1983.
2. A.T. Balachandra. *Trap Gun Injuries in a Rural Area in Sri Lanka*. 1st Asian-Pacific Congress in Legal Medicine and Forensic Sciences, Singapore, September 18-22, 1983.
3. A.T. Balachandra and B.A.W. Balasooriya. *Relationship between Diazepam and Self-Inflicted Injuries*. 97th Anniversary Academic Sessions of the Sri Lanka Medical Association, Colombo, Sri Lanka, March 28-April 1, 1984.
4. A.T. Balachandra, R.J. O'Connor, and D.H. Bowden. *Sudden Unexpected Death in Asthmatics*. 11th Meeting of the International Association of Forensic Sciences, Vancouver, British Columbia, August 2-7, 1987.
5. A.T. Balachandra, M. Paraskevas, and F. Paraskevas. *Correlation of Cytological Diagnosis to CA-125 Levels of Pleural and Peritoneal Fluids in Patients with Reactive and Malignant Effusions*. Joint Meeting of the Canadian Congress of Laboratory Medicine and the Canadian Society of Clinical Chemists, Winnipeg, Manitoba, June 25-30, 1988.
6. A.T. Balachandra and D.C. Rayner. *Identification of Toxoplasma Cysts in Endometrial Biopsy Material*. XVI World Congress of Anatomic and Clinical Pathology, Vancouver, British Columbia, June 22-27, 1991.
7. A.T. Balachandra. *Twelve Pediatric Cardiac Surgery Deaths*. 35TH Annual Meeting of the National Association of Medical Examiners, Richmond, Virginia, October 12-17, 2001.
8. A.T. Balachandra, J. Abbott, and G. Holens. *The Cost Efficiency of Manitoba's Medical Examiner's System*. 50th Annual Conference of the Canadian Society of Forensic Science, Vancouver, British Columbia, March 24-29, 2003.
9. A.T. Balachandra, J.C. Herath, J. Epp, and C.D. Littman. *Fatal Spectator Injury during Ice Hockey Game*. Annual Meeting of the National Association of Medical Examiners, San Jose, California, September 19-24, 2003.

10. C.D. Littman, J. de Nanassy, L. Lee, K. Hodgins, J. Coates, J. Christianson-Wood, and A.T. Balachandra. *Sudden Infant Death Syndrome versus Homicidal Asphyxia*. Annual Meeting of the National Association of Medical Examiners, San Jose, California, September 19-24, 2003.
11. A.T. Balachandra, C.D. Littman, A. Amiri, and G.A. Holens. *A Review of Nursing Home Deaths in Manitoba in 2003*. Annual Meeting of the National Association of Medical Examiners, Nashville, Tennessee, September 10-15, 2004.
12. A.T. Balachandra, G.A. Holens, and S. Ismath. *Review of Identified, but Unclaimed, Bodies in Manitoba (2008-2010)*. Annual Meeting of the National Association of Medical Examiners, Alaska Cruise Meeting, August 6-13, 2011.
13. C.D. Littman and A.T. Balachandra. *Deaths due to Hypothermia in Manitoba, Canada, 2001 to 2010*. Annual Meeting of the National Association of Medical Examiners, Milwaukee, Wisconsin, October 11-15, 2013.

POSTER PRESENTATIONS:

1. J.K. Younes, D. Barr, and A.T. Balachandra. *Fatal Injury Caused by a Replica Canon*. Annual Meeting of the National Association of Medical Examiners, Albuquerque, New Mexico, October 30-November 4, 1998.
2. A.T. Balachandra, M.H. Reed, C.R. Torwalt, J. Christianson-Wood, and S.M. Phillips. *Spiral Fracture of Long Bones in Non-Ambulatory Infants is a Sign of Child Abuse*. Annual Meeting of the National Association of Medical Examiners, Minneapolis, Minnesota, October 15-20, 1999.
3. A.T. Balachandra, C.R. Torwalt, C. Youngson, and J. de Nanassy. *Spontaneous Fractures in the Differential Diagnosis of Fractures in Children*. Annual Meeting of the American Academy of Forensic Sciences, Seattle, Washington, February 19-24, 2001.
4. A.T. Balachandra, A.S. Randunne, and G.A. Holens. *Snowmobile Fatalities in Manitoba – A Ten-Year Study*. Annual Meeting of the National Association of Medical Examiners, Shreveport, Louisiana, September 27-October 2, 2002.
5. C. Torwalt, A.T. Balachandra, and J. Epp. *Cervical Smears as an Alternate Source of DNA in the Identification of Human Skeletal Remains*. 55th Annual Meeting of the American Academy of Forensic Sciences, Chicago, Illinois, February 17-22, 2003.
6. A.T. Balachandra, J. Abbott, C. Youngson, Det./Sgt. J. Burchill, N.D.N.A. Mendis, and S. Barooni. *Homicide in a Surgical Intensive Care Unit*. Annual Meeting of the American Academy of Forensic Sciences, San Antonio, Texas, February 19-24, 2007.
7. A.N. Vadysinghe and A.T. Balachandra. *Decapitation Using a Domestic Log Splitter – A Case Report*. 10th Indo-Pacific Congress on Legal Medicine and Forensic Sciences, New Delhi, India, October 25-30, 2010.

8. J. Younes and A.T. Balachandra. *Post-mortem Diagnosis of Clostridial Sepsis*. National Association of Medical Examiners, Milwaukee, Wisconsin, October 11-15, 2013.

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1. A.T. Balachandra; B.A.W. Balasooriya; D.N. Athukorale; C. Selvie Perera, and K.D. Henry. *Chronic Arsenic Poisoning in Opium Addicts in Sri Lanka*. Ceylon Med. J. 28: 29-34, 1983.
2. A.T. Balachandra. *Trap Gun Injuries in a Rural Area in Sri Lanka*. Proceedings of the 1st Asian-Pacific Congress in Legal Medicine and Forensic Sciences, Singapore, 1983.
3. C.R. Torwalt, A.T. Balachandra, C. Youngson, and J. de Nanassy. *Spontaneous Fractures in the Differential Diagnosis of Fractures in Children*. J. Forensic Sci. 47(6): 1340-1344, 2002.
4. C. Torwalt, K. Murga, J. Epp, A.T. Balachandra, Y. Daoudi, D.A. Lee, and B.C. Smith. *Cervical Smears as an Alternate Source of DNA in the Identification of Human Skeletal Remains*. Can. Soc. Forensic Sci. J. 38(3): 165-169, 2005.
5. S. Barooni, A.T. Balachandra, and L. Lee. *Death in Epileptic People: A Review of Manitoba's Medical Examiner's Cases*. J. Clin. For. Med., 2007.
6. A.T. Balachandra, A.N. Vadysinghe, and A.L. William. *Practice of Forensic Medicine and Pathology in Sri Lanka*. Arch. Pathol. Lab. Med., Vol. 135 (2): 187-190, 2011.
7. Dewar, L.J., Alcaide M., Fornika D., D'Amato L., Shafaatalab S., Stevens C., Balachandra T., Phillips S., Sanatani S., Morin R., Tibbits G.F. *Investigating the genetic causes of sudden unexpected death in young children through targeted next-generation sequencing analysis*. *Circ Cardiovasc Genet*. 2017;10:e001738. DOI: 10.1161/CIRCGENETICS.116.001738
8. Vadysinghe, A.N. & Thambirajah, B. Bizarre use of log splitter: a case of decapitation; Forensic Sci Med Pathol (2019) 15: 607. <https://doi.org/10.1007/s12024-019-00152-z>

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Forensic Pathology Reviews, Volume 2, 2005, edited by Dr. Michael Tsokos, Humana Press Inc., New Jersey, USA. Can. Soc. Forensic Sci. J. 38(2): 108-109, 2005.

MANUSCRIPT REVIEWS:

Mass Fatality Management Following the South Asian Tsunami Disaster: Case Studies in Thailand, Indonesia and Sri Lanka. O.W.C. Morgan, P. Sribanditmongkol, C. Perera, Y. Sulasmi, D. Van Alphen, and E. Sondorp. Reviewed for PLoS Medicine, December 2005.

AWARDS:

1. Dr. E.M. Wijerama Award, 1983. For abstract presented at 96th Anniversary Academic Sessions of the Sri Lanka Medical Association, Colombo, Sri Lanka.
2. Dr. E.M. Wijerama Award, 1984. For abstract presented at 97th Anniversary Academic Sessions of the Sri Lanka Medical Association, Colombo, Sri Lanka.
3. William J. Deadman Prize, 1987. For abstract presented at 11th Meeting of the International Association of Forensic Sciences, Vancouver, British Columbia.
4. Dr. D.W. Penner Award, 1988. For abstract presented at the Joint Meeting of the Canadian Congress of Laboratory Medicine and the Canadian Society of Clinical Chemists, Winnipeg, Manitoba.
5. Desmond Magner Award, 1989. Canadian Reference Centre for Cancer Pathology.