



THE UNIVERSITY OF QUEENSLAND

A U S T R A L I A



Burns, Trauma & Critical Care Research Centre



**CENTRE FOR EXCELLENCE AND
INNOVATION IN ANAESTHESIA**



Prof. dr. André van Zundert, MD, PhD, FRCA, EDRA, FANZCA

Professor & Chairman Discipline of Anaesthesiology, The University of Queensland, Brisbane
Chair, The University of Queensland 'Burns, Trauma & Critical Care Research Centre'
Chair, RBWH/The University of Queensland 'Centre for Excellence & Innovation in Anaesthesia'
Royal Brisbane and Women's Hospital, Department of Anaesthesia & Perioperative Medicine, Brisbane
T: +61 7 36465673 – F: +61 7 36461308 – E: vanzundertandre@gmail.com

Actual Professorial Appointments:

- Australia: University of Queensland (Medicine), QUT, Victoria (Faculty of Engineering & Science)
- Overseas: University of Ghent (Belgium), Maastricht (Netherlands), Udayana (Indonesia)

Other functions:

- Member of the national ANZCA Research Committee & ANZCA Grant Committee
- Editorial Board Member & Reviewer of several international anaesthesia journals

Former appointments:

- Co-Founder, Council Member and former President of the European Society of Anaesthesiology
- Co-founder of the Pain Society
- President & Secretary-General of the European Society of Regional Anaesthesia and Pain Medicine
- President of several world congresses (anaesthesia) and co-convenor of ANZCA Brisbane 2017
- Founder 'European Diploma in Regional Anaesthesia and Pain Therapy'
- Director of Anaesthesia & Training, Catharina Hospital Eindhoven & University Maastricht, Netherlands

Professionalism

- A strong international profile that helps to put the RBWH at the front of the world map of anaesthesia
- My career focused on: improving patient care in anaesthesia; visualizing techniques used in anaesthesia; research in anaesthesia; teaching and simulation, all factors that intuitively underpin the specialty of academic anaesthesia.
- Guiding trainees in anaesthesia and supporting anaesthetists' professionalism and performance at the RBWH, the Department of Anaesthesia & Perioperative Medicine, and the CEIA

Peer Support

- Was granted 16 international awards, among two Royal Distinctions (Belgium & Netherlands)
- 2018 Research Support Award, Metro North Hospital & Health Service, Brisbane, Qld.

Education

- Supervisor of 36 PhD-students – At present: supervisor of 10 PhD-students (RBWH/UQ)
- Teaching to Year 2 Medical Students at UQ: a) principles of anaesthesia; b) trauma and anaesthesia
- Teaching to registrars in anaesthesia at RBWH / workshops in airway management and sono-anatomy PNBs

New Initiatives: 'Centre for Excellence and Innovation in Anaesthesia' (CEIA) at the RBWH.

- This innovative initiative was granted an Editorial in the British Journal of Anaesthesia (highest indexed journal in anaesthesia): Van Zundert A. et al. Continuing to excel in anaesthesia through the 'big five': teaching, training, testing, quality, and research. *Br J Anaesth* 2016; 117: 276-9.
- The CEIA was officially opened in June 2017 in the presence of representatives of the RBWH (Dr. Amanda Dines), UQ (Prof. Stuart Carney, Dean) and prominent Excellences (Prof. Alan Mackay-Sim, Australian of the Year 2017; Hon. Minister of Health Cameron Dick).
- The CEIA at the RBWH is an Australian first teaching, simulation and research centre in anaesthesia that allows trainees in anaesthesia, but also medical students/others, to be trained as future experts in anaesthesia at a top level to ensure surgery is safe for all patients. The aim of the Centre is to translate theory into practice and focusing on essential pillars that improve patient care. The University of Queensland recognized the value of these aspirations and in 2014, Professor van Zundert's concept of the CEIA was awarded the university's best innovation award at UQ.
- 'Anaesthesia Research Review' journal is another of my initiatives, whereby members of the Department of Anaesthesia review important publications in anaesthesia. This journal is distributed to all Australian anaesthetists.

Research

- Since my arrival in Brisbane in 2013, I have (co)authored more than 100 scientific papers, and was one of the editors of two major standard textbooks in anaesthesia of which one got more than 450,000 chapter downloads in 2016. Recently, I was one of two authors of the illustrated handbook on 'Regional Nerve Blocks'.
- My research output includes ± 400 publications; > 60 book chapters; 3 major textbooks and according Google Scholar: citations (7816); h-index (40); i10-index (117). LECTURED at numerous international conferences.
- Stimulated numerous junior and senior staff anaesthetists to start new research at the RBWH. In 2017 alone, ten anaesthesia staff members were awarded Prizes, Awards and Grants.
- Last December, our publication in Anaesthesia, 'Comparison of seven videolaryngoscopes' was awarded one of ten best Articles of the Year in Anaesthesia.
- Some of my work has been published on the cover of anaesthesia journals: e.g. Malpositioning of supraglottic airway devices (cover of British Journal of Anaesthesia 2016); Contributions of Professor Tess Cramond to Anaesthesia and Pain (cover of Anaesthesia Intensive Care 2017); The Centennial of Intravenous Regional Anaesthesia (cover of Regional Anaesthesia and Pain Medicine for a full year).

Ground breaking research:

My long experience with research in particular in obstetric anaesthesia, regional anaesthesia and airway management resulted in several worlds' first contributions:

- My local anaesthetic formula for **pain relief during childbirth** is still used nowadays worldwide. It proved to be very safe, and can be used as a test dose and as an effective dose in epidural (vaginal deliveries) and spinal (C-sections) anaesthesia. This ground-breaking research resulted in a Professorship at Harvard University Boston and collaboration with Harvard Professor Ostheimer in a major textbook: Van Zundert-Ostheimer 'Pain Relief and Anaesthesia in Obstetrics'.
- We described **dual heart rate monitoring** capacity on cardiocographs, allowing uninterrupted recording of maternal and foetal heart rate and uterine contractions to improve patient safety.
- We published a new technique to allow operations to be performed on patients with **very compromised pulmonary diseases**, showing that segmental thoracic spinal anaesthesia is a valid option.
- I was one of the pioneers of the – now very popular – **combined-spinal anaesthesia technique** and was one of the authors who demonstrated that regional anaesthesia has a serious impact in reducing postoperative morbidity and mortality. The latter enjoyed >2000 citations on Pubmed.
- One of my publications was awarded the 'Dr. David M. Little, Jr. Award' by the American History of Anaesthesia Association for his publication the "Centennial of intravenous regional anesthesia. Bier's Block 1908-2008". **This artwork was on the cover of the journal 'Regional Anesthesia and Pain Medicine'** for a full year.
- Using electron microscopy, we helped to unravel the cause for developing **postdural puncture headache** following inadvertent dural perforation by epidural needles. My collaboration with Professor Miguel Reina (University of Madrid, Spain) resulted in the 'Atlas of Functional Anatomy for Regional Anesthesia'.
- In the last 15 years, I concentrated **on improvements in airway management**, a key issue for all patients and was the first to prove that mask aperture bars are not an essential item for safe use of laryngeal masks. I was the first to demonstrate downfolding of the epiglottis during insertion of tracheal tubes.
- We were also frontrunner to publish on **three new airway devices**: the Soft-Seal LMA, the LMA-Supreme (the most frequently used airway) and the LMA-Protector.
- Insertion of laryngeal mask airways is essentially a blind technique. I propagate visualization of the airway with the adagium: "What we see, we can do better". Since 2015, we contributed much to the knowledge and safer insertion of tracheal tubes and laryngeal mask airways using **videolaryngoscopy**, a technique which is now advised to be standard practice. Recently, we could show several positions of laryngeal mask airways sitting in a manikin and in patients and captured different positions in situ in patients. This experience resulted in a flow chart, which helps anaesthetists in checking the position of the epiglottis and the laryngeal mask airway with videolaryngoscopy and allows manoeuvres to adjust any malpositioning. This cardinal research translates to better outcomes for patient as it drastically reduces complications. The incidence of malpositioning of laryngeal airway devices could be reduced from 70-80% to less than 5%. Potentially, all of the 200 million patients who undergo major surgery under general anaesthesia with this device on an annual basis worldwide will benefit from the new technique. Our vision fulminated in several editorials in the British Journal of Anaesthesia in 2016 and 2017.

Fundraising for research at RBWH:

- Research foci at the department of anaesthesia & perioperative medicine at the RBWH include: a) obstetric anaesthesia, regional anaesthesia, airway management, bariatric surgery, blood management and trauma care
- Instrumental in developing the Centre for Excellence and Innovation in Anaesthesia, based at the RBWH. This Centre underpins the importance of research and teaching using simulation and testing anaesthesia equipment for quality improvement in all aspects of anaesthesia.