

# AZRINA BINTI MD. RALIB



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## KELAYAKAN AKADEMIK

- Postgraduate Diploma in Islamic Studies
- Doctor of Philosophy
- Master of Medicine (Anaesthesiology)
- Bachelor of Medicine and Bachelor of Surgery
- Bachelor of Science in Medical Science

## TANGGUNGJAWAB MENGAJAR

ANAESTHESIOLOGY	2010/2011 2014/2015 2015/2016 2016/2017 2017/2018 2018/2019 2019/2020
BASIC ANAESTHESIA & CRITICAL CARE POSTING	2019/2020
OPHTHALMOLOGY	2014/2015
SUBSPECIALTIES ANAESTHESIOLOGY POSTING	2019/2020

## PROJEK PENYELIDIKAN

### In Progress

<b>2019 - Present</b>	Profiling the Static and Dynamic Estimates of Glomerular Filtration Rate Equations Based on Creatinine and Cystatin C in Critically Ill Patients in the Malaysian Setting
<b>2018 - Present</b>	A Novel Particle Swarm Optimization with Levy Flight Algorithm for Imputation of Missing Creatinine Value.
<b>2017 - Present</b>	The Effect of Holy Quran Recitation on Physiological Stress Response in Mechanically Ventilated Patients: A Randomized Controlled Trial
<b>2016 - Present</b>	"The Calorie Optimization Study with Indirect Calorimetry in Critically ill Patients: Development of Feeding Protocol in Intensive Care"
<b>2016 - Present</b>	"The Calorie Optimization Study with Indirect Calorimetry in Critically ill Patients: Development of Feeding Protocol in Intensive Care"
<b>2015 - Present</b>	Development of A Model-based Algorithm for Blood Glucose Control in Malaysian Intensive Care Unit Patients
<b>2015 - Present</b>	Modelling of incretin mechanism in glucose-insulin control system

## Completed

- 2016 - 2020** "The Calorie Optimization Study with Indirect Calorimetry in Critically ill Patients: Development of Feeding Protocol in Intensive Care"
- 2015 - 2018** Development of Glomerular Filtration Rate Monitor Based on Creatinine Kinetic Modelling in Critically Ill Patients
- 2014 - 2016** The Diagnostic And Predictive Performance Of Plasma Neutrophil-Gelatinase Associated Lipocalin In Critically Ill Patients With Systematic Inflammatory Syndrome, Sepsis And Acute Kidney Injury.
- 2011 - 2013** RU 2011 -Diagnostic value of procalcitonin, C-reactive protient, Interleukin-8 in critically ill patients admitted with suspected sepsis.
- 2011 - -1** RU 2011 -Diagnostic value of procalcitonin, C-reactive protient, Interleukin-8 in critically ill patients admitted with suspected sepsis.
- 2010 - 2011** Handbook on Acute Pain Management Service
- 2009 - -1** Survey on Routine Intraoperative Temperature Management Practices in Operation Theatre of the Hospital Tengku Ampuan Afzan, Kuantan and Hospital Sultanah Zahirah, Kuala Terengganu
- 2009 - 2011** Manual for Cardiopulmonary Resuscitation
- 2009 - 2010** A Randomized Double-Blind Placebo- Controlled, Phase -2b Study to Assess the Safety and Efficacy of ART-123 on Subjects with Sepsis and Disseminated Intravascular Coagulation, a phase 2b Study
- 2009 - -1** A Randomized Double-Blind Placebo- Controlled, Phase -2b Study to Assess the Safety and Efficacy of ART-123 on Subjects with Sepsis and Disseminated Intravascular Coagulation, a phase 2b Study
- 2009 - -1** Randomized Control trial Study of the I-Gel and ProSeal Laryngeal Mask Airway in Unparalysed Anaesthetized Patients
- 2009 - 2012** Anaesthesiology for Medical Undergraduates (2nd Edition)
- 2008 - 2012** Procalcitonin (PCT) as a Highly Sensitive and Specific Sepsis Marker in the Adult Intensive Care Unit (ICU)

## PENERBITAN

### Article

- 2020** [Assessment of glycemic control protocol \(STAR\) through compliance analysis amongst Malaysian ICU patients.](#) Medical Devices: Evidence and Research , 13 (1) pp.139-149
- 2020** [Patient asynchrony modelling during controlled mechanical ventilation therapy.](#) Computer Methods and Programs in Biomedicine , 183 (January 2020)
- 2019** [Assessing SB effort via a non-invasive model-based method in mechanically ventilated patients in Malaysian ICU hospital.](#) Indonesian Journal of Electrical Engineering and Computer Science , 15 (3) pp.1232-1240

- 2019** [Study on the blood glucose management with controlled goal feed in Malaysian critically ill patients.](#) IOP Conference Series: Materials Science and Engineering , 469 (2019) pp.1-10
- 2019** [Derivation of a new bioscore for predicting mortality in sepsis.](#) International Medical Journal Malaysia , 18 (1) pp.81-88
- 2019** [Validation of the 28-day mortality prognostic performance of the modified nutrition risk in critically ill score in a Malaysian intensive care unit.](#) Malaysian Journal of Nutrition , 25 (3) pp.413-421
- 2019** [Model-based glycemic control in a Malaysian intensive care unit: performance and safety study.](#) Medical Devices: Evidence and Research , 2019 pp.215-226
- 2019** [Determination of favorable blood glucose target range for stochastic TARGETed \(STAR\) glycemic control in Malaysia.](#) Indonesian Journal of Electrical Engineering and Computer Science , 15 (1) pp.133-141
- 2019** [Probabilistic glycemic control decision support in icu: proof of concept using Bayesian network.](#) Jurnal Teknologi (Sciences and Engineering) , 81 (2) pp.61-69
- 2019** [Model-based glyceic control in a Malaysian intensive care unit: performance and safety study.](#) Medical Devices: Evidence and Research , 2019 (12) pp.215-226
- 2018** [Assessing mechanical ventilation asynchrony through iterative airway pressure reconstruction.](#) Computer Methods and Programs in Biomedicine , 157 pp.217-224
- 2018** [The diagnostic and predictive value of plasma Cystatin C in acute kidney injury secondary to sepsis in the Intensive Care Unit.](#) IIUM Medical Journal Malaysia , 17 (Supplement 1) pp.23-23
- 2018** [The effects of Holy Quran recitation on physiological stress response in mechanically ventilated intensive care unit patients: a pilot study.](#) IIUM Medical Journal Malaysia , 17 (Supplementary 1) pp.65-65
- 2018** [Sepsis mortality score for the prediction of mortality in septic patients.](#) Journal of Critical Care , 43 pp.163-168
- 2018** [Performance of stochastic targeted blood glucose control protocol by virtual trials in the Malaysian intensive care unit.](#) Computer Methods and Programs in Biomedicine , 162 pp.149-155
- 2018** [Refeeding hypophosphataemia after enteral nutrition in a Malaysian intensive care unit: risk factors and outcome.](#) Asia Pacific Journal of Clinical Nutrition , 27 (2) pp.329-335
- 2018** [Levels and diagnostic value of model-based insulin sensitivity in sepsis: a preliminary study.](#) Indian Journal of Critical Care Medicine , 22 (6) pp.402-407
- 2018** [Acute kidney injury in Malaysian intensive care setting: incidences, risk factors and outcome.](#) Indian Journal of Critical Care Medicine , 22 (12) pp.831-835
- 2018** [Clinical application of respiratory elastance \(CARE trial\) for mechanically ventilated respiratory failure patients: a model-based study.](#) IFAC-PapersOnLine , 51 (27) pp.209-214
- 2018** [A machine learning model for real-time asynchronous breathing monitoring.](#) IFAC-PapersOnLine , 51 (27) pp.378-383

- 2018** [Virtual trial of glycaemic control performance and nursing workload assessment in diabetic critically ill patients.](#) International Journal of Engineering and Technology(UAE) , 7 (4) pp.54-58
- 2017** [Estimation of plasma insulin and endogenous insulin secretion in critically ill patients using intensive control insulin-nutrition-glucose model.](#) Advanced Science Letters , 23 (6) pp.5510-5514
- 2017** [Performance of glycaemic control protocol and virtual trial.](#) Advanced Science Letters , 23 (6) pp.5415-5418
- 2017** [Plasma neutrophil gelatinase associated lipocalin diagnosed acute kidney injury in patients with systemic inflammatory disease and sepsis.](#) Nephrology , 22 (5) pp.412-419
- 2017** [Sepsis mortality score using multi-marker approach for the prediction of mortality in septic critically ill patients.](#) IIUM Medical Journal Malaysia , 16 (Supplement 1) pp.36-36
- 2017** [Validating a lower urine output criteria in predicting death in critically ill patients.](#) The International Medical Journal of Malaysia , 16 (1) pp.45-52
- 2017** [Estimates of glomerular filtration rate in the critically ill with sepsis.](#) Kidney International Reports , 2 (4) pp.S33-S34
- 2017** [Prevalence of acute kidney injury and sepsis in a Malaysian intensive care setting.](#) Kidney International Reports , 2 (4) pp.S6-S6
- 2017** [Dynamic changes of plasma neutrophil gelatinase-associated lipocalin predicted mortality in critically ill patients with systemic inflammatory response syndrome.](#) Indian Journal of Critical Care Medicine , 21 (1) pp.23-29
- 2016** [Feasibility of an intensive control insulin-nutrition glucose model 'icing' with Malaysian critically-ill patient.](#) International Journal of Pharmacy and Pharmaceutical Sciences , 8 (Supplement 2) pp.40-42
- 2016** [Procalcitonin and Interleukin-6 for predicting culture negative and culture positive bacterial sepsis in critically ill patients with systemic inflammatory response syndrome.](#) International Medical Journal Malaysia , 15 (Supplement issue) pp.85
- 2016** [High frequency oscillatory ventilation in leptospirosis pulmonary haemorrhage: A case series.](#) Indian Journal of Critical Care Medicine , 20 (6) pp.342-348
- 2016** [Mathematical modeling of glucose-insulin system behavior in Hospital Tengku Ampuan Afzan intensive care unit patients.](#) ARPN Journal of Engineering and Applied Sciences , 11 (18) pp.10899 -10903
- 2016** [The diagnostic ability of procalcitonin and interleukin-6 to differentiate infectious from noninfectious systemic inflammatory response syndrome and to predict mortality.](#) Journal of Critical Care , 33 pp.245-251
- 2016** [The impact of fluid balances in the first 48 hours on mortality in the critically ill patients.](#) International Medical Journal Malaysia , 15 (1) pp.13-18
- 2015** [Refeeding hypophosphataemia in a Malaysian intensive care unit: incidence, risk factors and outcomes.](#) Brunei International Medical Journal , 11 (2) pp.65-73

- 2015** [Acute kidney injury in a Malaysian intensive care unit: assessment of incidence, risk factors and outcome.](#) Journal of Critical Care , 30 (3) pp.636-642
- 2014** [The clinical utility window for acute kidney injury biomarkers in the critically ill.](#) Critical Care , 18 (601) pp.1-12
- 2014** [Procalcitonin clearance for early prediction of survival in critically ill patients with severe sepsis.](#) Critical Care Research and Practice , 2014 (819034) pp.1-7
- 2013** [High-dose intravenous epoetin does not increase blood pressure in critically ill patients with acute kidney injury.](#) Clinical Nephrology , 79 (5) pp.370-379
- 2013** [Procalcitonin as a sepsis marker: experience of an intensive care setting in Malaysia.](#) Brunei International Medical Journal , 9 (4) pp.243-252
- 2013** [The urine output definition of acute kidney injury is too liberal.](#) Critical Care , 17 (5) pp.370-379
- 2013** [Combining creatinine and volume kinetics identifies missed cases of acute kidney injury following cardiac arrest.](#) Critical Care , 17 (1) pp.R7 (1)-R7 (18)
- 2012** [Transient Acute Kidney Injury \(AKI\) is common following significant kidney hypoperfusion.](#) Nephrology , 17 (Supp.2) pp.54
- 2012** [Hypophosphatemia in the Intensive Care Unit: Incidence, Predictors and Management.](#) The International Medical Journal Malaysia , 11 (1) pp.31-36
- 2011** [New considerations in the design of clinical trials of acute kidney injury.](#) Clinical Investigation , 1 (5) pp.637-650
- 2011** [Acute high-dose intravenous epoetin did not increase blood pressure in critically ill patients with acute kidney injury.](#) Journal of the American Society of Nephrology , 22 pp.296A-297A
- 2010** [High frequency oscillating ventilation \(HFOV\) in severe acute respiratory distress syndrome \(ARDS\): a case report.](#) The Internal Medical Journal , 9 (1) pp.51-54
- 2009** [Smoker desaturation during general anaesthesia: a case report.](#) International Medical Journal Malaysia , 8 (1) pp.61-63
- 2009** [Central pontine melinosis resulting in quadriplegia in alcohol withdrawal.](#) ASEAN Journal of Anaesthesiology , 10 (Spec) pp.150
- 2009** [Central pontine myelinosis resulting in quadriplegia in alcohol withdrawal.](#) ASEAN Journal of Anaesthesiology , 10 pp.150
- 2009** [A case series of the use of High Frequency Oscillating Ventilation \(HFOV\) in Acute Respiratory Distress Syndrome \(ARDS\) in Adult ICU of the Hospital Tengku Ampuan Afzan, Kuantan.](#) ASEAN Journal of Anaesthesiology , 10 (supp 1) pp.47
- 2009** [Continuous spinal anesthesia for lower limb surgery in patient with poor left ventricular function.](#) ASEAN Journal of Anaesthesiology , 10 (Suppl ) pp.167
- 2007** [Oral Analgesia 24 hours after major operation: A Comparative Study Of Oral Celecoxib and Tramadol in Patients Undergoing Major Gynaecological Operation.](#) ASEAN Journal of Anaesthesiology , 8 (1) pp.59-65

2007 [A comparative study of dexmedetomidine and propofol for sedation in the cardiothoracic intensive care unit.](#) International Medical Journal Malaysia , 6 (2) pp.1-17

2007 [Oral analgesic 24 hours after major operation: a comparative study of oral celecoxib and tramadol in patients undergoing major gynaecological operation .](#) Asean Journal of Anaesthesiology , 8 pp.57-63

#### Conference or Workshop Item

2020 [Mortality prediction in critically ill patients using machine learning score.](#) In: **5th International Conference on Mechanical Engineering Research 2019**

2020 [Model comparison of estimated glomerular filtration rate for acute kidney injury in intensive care unit.](#) In: **5th International Conference on Mechanical Engineering Research 2019**

2020 [Bone-graft interface in New Zealand White rabbit's model: A novel Malaysian-made biomaterial, "osteopaste".](#) In: **Malaysia Terchnology Expo 2020**

2019 [Insulin sensitivity and blood glucose level of sepsis patients in the intensive care unit.](#) In: **2018 IEEE EMBS Conference on Biomedical Engineering and Sciences, IECBES 2018**

2019 [Assessment of Malaysian ICU staff perceptions towards STAR glycaemic control protocol.](#) In: **2018 IEEE Region 10 Conference (TENCON 2018)**

2018 [Investigation of glucose-insulin model efficacy for diabetes patient in the ICU.](#) In: **2nd International Conference for Innovation in Biomedical Engineering and Life Sciences, ICIBEL 2017**

2018 [Blood glucose and sepsis score on sepsis patients requiring insulin therapy.](#) In: **2nd International Conference for Innovation in Biomedical Engineering and Life Sciences, ICIBEL 2017**

2018 [Model iterative airway pressure reconstruction during mechanical ventilation asynchrony: shapes and sizes of reconstruction.](#) In: **2nd International Conference for Innovation in Biomedical Engineering and Life Sciences (ICIBEL 2017) in conjunction with APCMBE 2017**

2018 [Decision support for parenteral nutrition supplementation in ICU using model-based glycemic control protocol.](#) In: **2nd International Conference for Innovation in Biomedical Engineering and Life Sciences, ICIBEL 2017**

2018 [Model-based insulin-nutrition administration for glycemic control in Malaysian critical care: First pilot trial.](#) In: **2nd International Conference for Innovation in Biomedical Engineering and Life Sciences, ICIBEL 2017**

2017 [Comparison between different equations for estimating glomerular filtration rate \(GFR\) with kinetic estimates of GFR in the critically ill.](#) In: **Malaysian Society of Anaesthesiology Annual Scientific Meeting 2017**

2017 [Prevalence of augmented renal clearance in a Malaysian intensive care setting.](#) In: **Malaysian Society of Anaesthesiology Annual Scientific Meeting 2017**

2017 [Derivation of a multi-biomarker model and score as a predictor of 30-day mortality in critically ill sepsis patients: A prospective cohort study.](#) In: **Malaysian Society Anaesthesiology Annual Scientific Meeting 2017**

- 2017 [Model-based insulin sensitivity for early diagnosis of sepsis in critical care.](#) In: **Annual Scientific Meeting on Intensive Care (ASMIC 2017) : 1st Asian Pediatric Mechanical Ventilation Forum**
- 2017 [Efficacy and safety of SPRINT and STAR protocol on Malaysian critically-ill patients.](#) In: **2016 IEEE EMBS Conference on Biomedical Engineering and Sciences (IECBES)**
- 2017 [Augmented renal clearance in critically ill patients with sepsis: prevalence, risk factors and outcome.](#) In: **Medical Research Symposium 2017**
- 2017 [Estimates of glomerular filtration rate by the chronic kidney disease epidemiology collaboration equations best correlates with kinetic estimates of glomerular filtration rates in the critically ill.](#) In: **Medical Research Symposium 2017**
- 2017 [Plasma cystatin C and estimates of glomerular filtration rate using cystatin C independently diagnosed acute kidney injury in critically ill patients with sepsis.](#) In: **Medical Research Symposium 2017**
- 2016 [Serial measurement of plasma neutrophil gelatinase associated lipocalin in mortality prediction in critically ill patients with systemic inflammatory disease and sepsis.](#) In: **Annual Scientific Congress 2016 of the Malaysian Society of Anaesthesiologists & Obstetric Anaesthesia Satellite Meeting**
- 2016 [Refeeding syndrome in a Malaysian intensive care unit: an assessment of incidence, risk factors and outcome.](#) In: **Annual Scientific Congress 2016 of the Malaysian Society of Anaesthesiologists and the 13th Obstetric Society of Anaesthesiologists Symposium**
- 2016 [Performance of blood glucose management protocols in HTAA intensive care unit.](#) In: **2016 IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS),**
- 2016 [Implementation of a prototype glomerular filtration rate application to monitor creatinine kinetic dynamics in critically ill patients.](#) In: **2016 IEEE EMBS Conference on Biomedical Engineering and Sciences (IECBES)**
- 2016 [Feasibility of an intensive control insulin-nutrition glucose model 'icing' with Malaysian critically-ill patient.](#) In: **2016 Asia Pacific Chemical, Biological & Environmental Engineering Society Copenhagen Conferences (APCBEES)**
- 2016 [Performance of STAR virtual trials for diabetic and non-diabetic in HTAA Intensive Care Unit.](#) In: **2016 IEEE EMBS Conference on Biomedical Engineering and Sciences (IECBES)**
- 2016 [Estimation of plasma insulin and endogenous insulin secretion in critically ill patients using ICING model.](#) In: **International Conference on Computer, Communication, and Control Technology (I4CT 2014)**
- 2015 [Plasma neutrophil gelatinase-associated lipocalin best diagnosed acute kidney injury in patients with systemic inflammatory response syndrome and sepsis .](#) In: **Malaysian Society of Anaesthesiologists & College of Anaesthesiologists Annual Scientific Congress 2015 & 13th Asian Society of Paediatric Anaesthesiologists Congress**
- 2015 [Urine output in diagnosing acute kidney injury and predicting mortality.](#) In: **Malaysian Society of Anaesthesiologists & College of Anaesthesiologists Annual Scientific Congress 2015 & 13th Asian Society of Paediatric Anaesthesiologists Congress**

- 2015 [Acute kidney injury in a Malaysian Intensive Care Unit: incidence, risk factors and outcome.](#) In: **3rd Singapore-ANZICS Intensive Care Forum 2015 (SG-ANZIC)**
- 2014 [Acute kidney injury \(AKI\) in the intensive care unit \(ICU\) of Hospital Tengku Ampuan Afzan Kuantan \(HTAA\): Incidence, risk factors and outcome.](#) In: **8th National Conference for Clinical Research 2014**
- 2013 [Early procalcitonin dynamics in critically ill patients with sepsis in a tertiary ICU.](#) In: **11th Congress of the World Federation of Societies of Intensive and Critical Care Medicine**
- 2013 [The impact of fluid overload on mortality and acute kidney injury.](#) In: **World Congress of Nephrology**
- 2013 [Urine output criteria in prediction of mortality or dialysis requirements in the critically ill.](#) In: **World Congress of Nephrology 2013**
- 2013 [Earlier measurement of biomarkers does not enhance detection of acute kidney injury following significant kidney hypoperfusion.](#) In: **World Congress of Nephrology 2013**
- 2012 [Early plasma increase in creatinine following significant kidney hypoperfusion.](#) In: **Translational Nephrology: From Mechanisms to Therapeutics, Meeting of the Renal Scientists, Australia and New Zealand Society of Nephrology, in conjunction with The Kidney in Health and Disease Research Theme, University of Chicago**
- 2011 [A study on incidence, predictors and management of hypophosphaemia in a Malaysian ICU.](#) In: **Annual Scientific Meeting on Intensive Care**
- 2011 [The utility of biomarker excretion rates in acute kidney injury.](#) In: **World Congress of Nephrology 2011**
- 2010 [Survey on knowledge and practice of intraoperative temperature management.](#) In: **13th Asian Australasian Congress of Anaesthesiologists**
- 2010 [Randomized, control trial study of the i-Gel™ and ProSeal LMA in anesthetized, non paralyzed patients.](#) In: **13th Asian Australasian Congress of Anaesthesiologists**
- 2010 [Do clinical experience affects competency evaluation using Human Patient Simulator \(HPS\)? .](#) In: **13th Asian Australasian Congress of Anaesthesiologists**
- 2009 [Smoker desaturation during general anaesthesia: a case report.](#) In: **16th Asean Congress of Anaesthesiologist & 7th National Conference on Intensive Care**
- 2007 [The use of high-fidelity patient simulation in training healthcare professionals: a proposal for co-operation between the university and Ministry of Health, Malaysia.](#) In: **Malaysian Society of Anaesthesiologists & College of Anaesthesiologists Annual Scientific Meeting 2007**
- 2005 [A comparative study of dexmedetomidine and propofol for sedation in the cardiothoracic intensive care unit.](#) In: **3rd National Conference on Intensive Care**



- 2004 [Descriptive study on the usage of patient-controlled analgesia morphine in post open heart surgery patients in Hospital Universiti Sains Malaysia.](#) In: **12th Congress of Asia Pacific Association of Respiratory Care**
- 2004 [APACHE II severity scoring system: evaluating its role in intensive care unit of the Universiti Sains Malaysia Hospital.](#) In: **12th Congress of Asia Pacific Association of Respiratory Care (APARC 2004)**

#### **Book**

- 2017 [Paraoxonase-1 activities and procalcitonin levels in sepsis and non-infectious systemic inflammatory response syndrome patients in a tertiary intensive care unit.](#) IIUM Press, International Islamic University Malaysia . ISBN 978-967-418-735-4
- 2012 [A cardiopulmonary resuscitation guide for healthcare providers.](#) Department of Anaesthesiology and Intensive Care . ISBN 978-983-44569-0-0
- 2012 [Essential anesthesiology for healthcare professionals.](#) Department of Anaesthesiology and Intensive Care . ISBN 983-44569-0-0

#### **Book Section**