

SECC-Best of SCCM Congress 2021 Taipei & 2021 Joint Annual Congress of
TSCCM and TSECCM

SECC-SCCM 精華 2021 台北國際會議暨 2021 台灣急重症聯合學術年會

A1 全英文 Best of SCCM -Hot Issues in COVID-19 I

主辦單位：中華民國重症醫學會、台灣急救加護醫學會

時間：2021 年 12 月 18 日(星期六)上午 9-12 點

地點：張榮發基金會國際會議中心 B1 宴會廳

| 演講時間 | 題目 | 演講者 |
|------------------------|--|-------------------------|
| 09:00-09:20 | From Super PEEP to Belly Push: 50+ Years of Mechanical Ventilation of ARDS | Phillip Dellinger(USA) |
| 09:20-09:50 | Now That We Know It, How Do We Implement It? | Christa A. Schorr (USA) |
| 09:50-10:20 | Little Big Data – Data Driving Change and Improvement | Adrian Wong (UK) |
| 10:20-10:45 | <i>Break</i> | |
| Moderator: 陽光耀主任、陳昌文主任 | | |
| 10:45-11:15 | Year in Review: Top 10 Articles | JingTao (USA) |
| 11:15-11:40 | Exploring the International Microcirculation Network Using Artificial Intelligence | Can Ince(Holand) |
| 11:40-12:00 | Mechanical Ventilation and COVID-19 | Philip Sommer |

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主辦單位：中華民國重症醫學會、台灣急救加護醫學會
日期：2021.12.18 (星期六) 12:10-13:20
地點：張榮發基金會會議中心

SAVE MORE LIVES
Antiplatelet Therapy for Acute Ischemic Cardio- &
Cerebrovascular Diseases : State of the Art

| 演講時間 | 題目 | 演講者 |
|--------------------------|---|---------------------|
| Moderator: 黃瑞仁理事長 | | |
| 12:00 | Opening Remarks | |
| 12:05-12:35 | Individualized antiplatelet strategy for ACS patients endorsed by the latest guidelines | 林柏霖醫師 新竹馬偕醫院心臟內科 |
| 12:35-13:10 | A new option for stroke prevention in patients with recent minor stroke or TIA : Ticagrelor Added Aspirin | 湯頌君醫師 臺大醫院神經部 |

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A2 全英文 SECC-Hot Issues in COVID-19 II

主辦單位：中華民國重症醫學會、台灣急救加護醫學會

時間：2021 年 12 月 18 日(星期六)下午 1:30-4:30

地點：張榮發基金會國際會議中心 B1 宴會廳

| 演講時間 | 題目 | 演講者 |
|--|---|--|
| Moderator: 顏慕庸院長、陳世英主任 | | |
| Advanced Response and Development in COVID-19 Era | | |
| 13:30 | Opening | |
| 13:30-13:48 | Rapid Response System | Shanaz Sajeed (Singapore) |
| 13:48-14:06 | Targeted Temperature Management for Severe Subarachnoid Hemorrhage | Hitoshi Kobata(Japan) |
| 14:06-14:24 | Taiwan's Response to COVID-19 | Kuang-Yao Yang (Taiwan) 陽光耀-台北榮總呼吸治療科 |
| 14:24-14:42 | Singapore Intensive Care and the Fight Against COVID-19 | Jason Phua (Singapore) |
| 14:45-15:15 Break | | |
| Moderator: 許超群主任、陳欽明主任 | | |
| Update in Sepsis and COVID-19 | | |
| 15:15-15:33 | Septic Cardiomyopathy: What's New? | Bernard Cholley (France) |
| 15:33-15:51 | Artificial Intelligence for Sepsis Management | Ming-Ju Tsai (Taiwan) 蔡明儒-高醫胸腔內科 |
| 15:51-16:09 | Ultrasound and Echocardiography in COVID-19 | Michael Lanspa (USA) |
| 16:09-16:30 | Estimating Sepsis Burden: Challenges and Opportunities | Lowell Ling (Hong Kong) |

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主辦單位：中華民國重症醫學會、台灣急救加護醫學會
時間：2021年12月18日(星期六)下午4:45-6:00
地點：張榮發基金會國際會議中心 601 會議室

| 演講時間 | 題目 | 演講者 |
|-------------|---|--------------------|
| 16:45 | Opening | |
| 16:50-17:50 | Nutrition in Sepsis: A Bench-to-Bedside Review | Elisabeth DE WAELE |

主辦單位：中華民國重症醫學會、台灣急救加護醫學會

日期：2021.12.19 (星期日)9:00-10:15

地點：張榮發基金會國際會議中心 602 會議室

安寧緩和醫療/病人自主權立法 (申請倫理、法規學分)

| 演講時間 | 題目 | 演講者 |
|-------------------------|-----------|-----------------------------|
| Moderator: 謝志成醫師 | | |
| 09:00-09:05 | Opening | |
| 09:05-09:25 | 病主法施行現況 | 蔡瑞鴻醫師 成大醫院安寧緩和共同照 護中心 |
| 09:25-09:50 | 病主法的理想與現實 | 謝宛婷醫師 奇美醫院緩和醫學科 |
| Moderator: 張厚台醫師 | | |
| 09:50-10:15 | 重症安寧:成大經驗 | 謝志成醫師 成大醫院內科加護病房 |

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A3 全英文 SECC -Advance in COVID-19 Era I

主辦單位：中華民國重症醫學會、台灣急救加護醫學會

時間：2021 年 12 月 19 日(星期日)上午 9-12 點

地點：張榮發基金會國際會議中心 B1 宴會廳

| 演講時間 | 題目 | 演講者 |
|------------------------------------|---|-----------------------------------|
| Moderator: 陳永昌部長、袁國慶主任 | | |
| Renal Critical Care and AKI | | |
| 10:45-11:10 | CRRT in Japan | Kent Doi (Japan) |
| 11:10-11:35 | Timing of Renal Replacement Therapy in ICU | Rinaldo Bellomo (Australia) |
| 11:35-12:00 | Biomarker of Persistent Acute Kidney Injury in Critical Care: Another Gemstone in the Jewelry Box | Vin-Cent Wu (Taiwan) 吳允升-臺大腎臟科 |
| | Hemoperfusion: Current Practice | Hoi-Ping Shum (Hong Kong) |

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主辦單位：中華民國重症醫學會、台灣急救加護醫學會

日期：2021.12.19(星期日)12:10-13:10

地點：張榮發基金會會議中心 601 會議室

| 演講時間 | 題目 | 演講者 |
|---|--|---------------------------------|
| 12:10-12:40 | Hemoperfusion: Current Practice | Hoi-Ping Shum (Hong Kong) |
| 12:40-13:10 | Introduce European Experience of oXiris | Peter PICKKERS (Netherlands) |
| 日期：2021.12.19(星期日) 地點：張榮發基金會會議中心 603 會議室 | | |
| 13:30-14:00 | 急重症病患的復健原則 | 程遠揚 醫師 台中榮民總醫院復健科 |

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A4 全英文 SECC -Advance in COVID-19 Era II (申請品質學分)

主辦單位：中華民國重症醫學會、台灣急救加護醫學會
時間：時間：2021 年 12 月 19 日(星期日)下午 2:00-4:45
地點：張榮發基金會國際會議中心 B1 宴會廳

| 演講時間 | 題目 | 演講者 |
|-----------------------------------|--|--|
| Moderator: 王植賢主任、辛和宗主任 | | |
| ECMO | | |
| 14:00 | Opening | |
| 14:00-14:30 | CRISIS Database for Critically Ill COVID-19 Patients in Japan | Satoru Hashimoto (Japan) |
| 14:30-15:00 | ECPR in Cardiac Arrest | Kuan-Ming Chiu (Taiwan) 邱冠明-亞東醫院 |
| 15:00-15:30 Break | | |
| Moderator: 溫明賢副院長、陳奇祥部長 | | |
| Quality and Patient Safety | | |
| 15:30-15:48 | Disruptive Behavior in Medical Field 如何防止醫療領域的破壞行為及預防改善 | Sungwon Na (Korea) |
| 15:48-16:06 | Post-Intensive Care Syndrome 加護病房 後症候群 | Kensuke Nakamura (Japan) |
| 16:06-16:24 | Development of BI in ICU Operation Management 如何運用經營模版改善加護病房照護流程 | Fang Ming Hung (Taiwan) 洪芳明-亞東外科加護病房 |
| 16:24-16:42 | Using Patient Flow Management to Improve the Care Quality of ICU 如何使用 跨指標運用(Patient flow management) 以改善加護病房照護 品質 | Chieh-Liang Wu (Taiwan) 吳杰亮-台中榮總重症醫學部 |
| 16:42-17:00 | Quality and Performance Improvement in Intensive Care Units 加護病房照護 品質改善及成果報告 | Wei-Chun Huang (Taiwan) 黃偉春-高雄榮總重症醫學部 |

| | | | |
|-------------------|---|--|--|
| 講師姓名 | 最高學歷 | 現職 | 經歷 |
| Phillip Dellinger | Medical University of South Carolina(畢業年度：63年)Dept. of Medicine(大學(學士)) | Cooper Medical School of Rowan UniversityProfessor of Medicine(教學：20年務實：20年研究：20年) | Cooper Research InstituteDirector(教學：4年務實：4年研究：4年) |

Christa A. Schorr (USA)

| | |
|-----------------------------|---|
| Department, Position | Cooper Research Institute, Clinical Research Scientist |
| Institution | Cooper University Health Care |

Christa is a Clinical Nurse Scientist at Cooper University Hospital and an Associate Professor of Medicine at Cooper Medical School at Rowan University. During her 25+ years in nursing, she has practiced clinically, directed critical care quality improvement and clinical research and was the Program Manager for a North American sepsis clinical trial. Christa received her Bachelor of Science in Nursing from Thomas Jefferson University and her Masters of Science in Nursing and Doctorate of Nursing Practice degrees from Drexel University.

Adrian Wong (UK)

| | |
|-----------------------------|--|
| Department, Position | Consultant, Dept of Critical Care |
| Institution | King's College Hospital, London |

Dr Wong has been a consultant in anaesthesia& intensive care since 2015 and is currently a consultant at King's College Hospital, London. He is also pursuing a PhD in Vrije University Brussels on fluid stewardship and management in the critical care setting.

JingTao

| | |
|-----------------------------|---|
| Department, Position | Department of Anesthesiology and Critical Care Medicine, Assistant Attending |
| Institution | Memorial Sloan Kettering Cancer Center |

I am a critical care anesthesiologist at Memorial Sloan Kettering Cancer Center in New York City. I completed my residency in anesthesiology at the University of Maryland Medical Center in 2013 and my fellowship in critical care at Brigham and Women's Hospital in 2014. I worked as an attending anesthesiologist and surgical ICU intensivist at Yale New Haven Hospital 2014-2020 before joining the department at MSKCC in March of 2020. My clinical interest includes quality and safety with a focus on improving perioperative care in critically ill patients. I strongly believe that perioperative medicine affects outcome in cancer patients, especially in those with life threatening illness.

I also currently serve as the MSKCC champion to the Multicenter Perioperative Outcome Group. In this role, I work with a multidisciplinary group of providers and researchers to examine trends in national data on surgical patients with the goal of conducting research, improve quality, and guide practice.

Can Ince

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|-----------------------------|--|
| Department, Position | Dept. Intensive Care, head Lab Translational Intensive Care |
| Institution | Erasmus Medical Center |

Professor Can Ince is a physiologist and since 2020 heads the Laboratory of Translational Intensive Care Medicine, Department of Intensive Care Medicine (head Prof Gommers) of the Erasmus Medical Center Rotterdam. He is Prof in Clinical Physiology "Cardiovascular aspects of peri-operative and intensive care medicine". Previously he headed the Department of Translational Physiology at the Academic Medical Center (AMC) of the University of Amsterdam.

林柏霖

學歷

中山醫學大學醫學系
中原大學生物醫學工程研究所碩士

經歷

馬偕紀念醫院心臟內科總醫師
馬偕紀念醫院心臟內科主治醫師

現任

新竹馬偕紀念醫院心臟內科資深主治醫師

湯頌君

國立臺灣大學

醫學院臨床醫學研究所

博士

國立臺灣大學

醫學院神經科

臨床教授

01-08-2021

國立臺灣大學醫學院 神經部
附設醫院

主治醫師

Shanaz Matthew Sajeed

| | |
|-----------------------------|--|
| Department, Position | Emergency Medicine, Intensive Care Medicine |
| Institution | Ng Teng Fong General Hospital |

Dr. Shanaz is currently a consultant in Emergency Medicine and Intensive Care Medicine practicing at Ng Teng Fong General Hospital. He is actively involved in the teaching of medical students and residents and is the undergraduate education lead for Emergency Medicine. Dr. Shanaz is also the Chairman of the Cardiac Life Support Committee for the hospital and oversees the code blue activation system within hospital as well as the training of staff in Basic and Advanced Cardiac Life Support. He has a keen interest in critical care as well as collaborating with other esteemed colleagues in developing a robust rapid response system.

Hitoshi Kobata

| | |
|-----------------------------|--|
| Department, Position | Neurosurgery, Director |
| Institution | Osaka Mishima Emergency Critical Care Ctr |

Dr. Kobata is a neurosurgeon/neurointensivist and currently serving as Director of the Osaka Mishima Emergency Critical Care Center. His clinical activities and research interests focus on the treatment of severe stroke and traumatic brain injury as well as the resuscitation of critically ill neurological patients. Dr. Kobata graduated from Osaka Medical College in 1984 and joined the Department of Neurosurgery. After his professional experience as a neurosurgeon, he started working at the Osaka Mishima Emergency Critical Care Center in 1999, where he has been dedicated himself to treating critically ill neurological patients. Dr. Kobata is the first Asian to be certified as a Fellow of the Neurocritical Care Society in 2015. Dr. Kobata presided as the President of the Japanese Association of Brain Hypothermia in 2010, the Japanese Association of Cerebral Resuscitation and Brain Death in 2018, Japan Society of Neurological Emergencies and Critical Care in 2019, and the 2nd Neurocritical Care Society Asian and Oceanian Chapter Annual Meeting in 2019 (Co-chair).

| 講師姓名 | 最高學歷 | 現職 | 經歷 |
|------|--|-----------------------------------|--------------------------------------|
| 陽光耀 | 台北醫學大學(畢業年度：81年)醫學系(大學(學士)) 陽明大學(畢業年度：100年)臨床醫學研究所(研究所(博士)) | 台北榮民總醫院呼吸治療科主任(教學：5年 務實：5年 研究：5年) | 台北榮民總醫院胸腔部主治醫師(教學：20年 務實：20年 研究：20年) |

Jason Phua

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|-----------------------------|--|
| Department, Position | Senior Consultant |
| Institution | Alexandra Hospital and National University Hospital |

Jason Phua is respiratory physician and intensivist who is Co-Chair of Singapore's National COVID-19 Intensive Care Unit Committee, Deputy Chair of the National Intensive Care Unit Repository (NICUR), Chair of the Asia Ventilation Forum (AVF), and Secretary of the Asian Critical Care Clinical Trials (ACCCT) Group. He is the current Chief Executive Officer of Alexandra Hospital (AH) of the National University Health System (NUHS). He previously served as the Head of Division of Respiratory and Critical Care Medicine at National University Hospital (NUH) and as President of the Society of Intensive Care Medicine (SICM Singapore).

Bernard Cholley

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|-----------------------------|--|
| Department, Position | Anesthesiology & Intensive Care, Chairman |
| Institution | Hôpital Européen Georges Pompidou, AP-HP |

Bernard Cholley is professor at Université de Paris and is the chairman of the Department of Anesthesiology & Intensive Care Medicine at Hôpital Européen Georges Pompidou (Assistance Publique, Hôpitaux de Paris). He works mainly in cardiac surgical intensive care and his areas of interest include haemodynamics (physiology, pathophysiology, monitoring,...) and the perioperative management of high-risk surgical patients. He has also been involved for a long time in promoting and teaching the use of ultrasound techniques in the anesthesiology / critical care environment. He is an active member of the European Society of Intensive Care Medicine, European Society of Anaesthesiology, and the French Society of Anaesthesiology and Critical Care Medicine.

Ming-Ju Tsai 蔡明儒

| | | |
|-----------------------------|---|--------------------|
| Department, Position | Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, Attending Physician | |
| Institution | Kaohsiung Medical University Hospital, Kaohsiung Medical University | |
| 2015 | Kaohsiung Medical University | M.D., Ph.D. |

Dr. Ming-Ju Tsai is a pulmonologist and intensive care physician in Kaohsiung Medical University Hospital (KMUH), Taiwan. He is currently associate professor in Kaohsiung Medical University, as well as medical secretary of Department of Superintendent, and director of Department of Medical Records in KMUH. His study interests include airway disease, such as asthma and chronic obstructive pulmonary disease, critical care medicine, general pulmonary medicine, and sleep medicine. He has also committed himself to improve the medical information systems for several years, trying to improve patient care through technology. In addition to his basic, clinical, and big-data researches, he is currently trying to develop a next-generation smart intensive care unit in KMUH.

Michael Lanspa

| | |
|-----------------------------|--|
| Department, Position | Associate Professor, Pulmonary and Critical Care |
| Institution | Intermountain Medical Center and University of Utah |

Professional
Medical, MD

Creighton University
School of Medicine
Medicine

I have chaired or served as regular faculty for several societal courses on critical care echocardiography and ultrasound. I'm also an investigator in the National Heart, Lung, and Blood institute's PETAL network, which studies acute lung injury.

Lowell Ling

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|-----------------------------|--|
| Department, Position | Department of Anaesthesia and Intensive Care, Assistant Professor |
| Institution | The Chinese University of Hong Kong |

Lowell Ling is an Assistant Professor of the Department of Anaesthesia and Intensive Care at The Chinese University of Hong Kong. He is an intensivist working at Prince of Wales Hospital in Hong Kong. His research interests include epidemiology and genomics of sepsis, microbiome and data analytics in critical care. He is a member of the Asia Pacific Sepsis Alliance and is an instructor of the BASIC course.

Elisabeth DE WAELE

March 2021 - present

Head of Department, Department of Clinical Nutrition Universitair Ziekenhuis Brussel (UZ Brussel) Vrije Universiteit Brussel (VUB), Belgian

2015 – present

Clinical Professor at the Vrije Universiteit Brussel (VUB)

Vrije Universiteit Brussel Medical School

Master in Medicine (MD) 2000 - 2004

蔡瑞鴻

成大醫院安寧緩和共同照護中心主任

學歷

- 國立成功大學臨床醫學研究所碩士

經歷

- 2015年09月 ~迄今 成大醫院血液腫瘤科醫師

謝宛婷

| | | |
|-------------|-------------|------|
| 104年 ~ 109年 | 成功大學法律所 | 碩士 |
| 108年 ~ 110年 | 奇美醫學中心緩和醫學科 | 主任 |
| 102年 ~ 110年 | 奇美醫學中心家庭醫學部 | 主治醫師 |

謝志成

| | | |
|---------------|-------------------|----------|
| 2012年 ~ 2017年 | 成功大學醫學工程研究所 | 碩士 |
| 2020年 ~今 | 成大醫院內科部 重症功能分科 | 內科加護病房主任 |
| 2011年 ~今 | 成大醫院內科部 重症功能分科 | 主治醫師 |

Kent Doi

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|-----------------------------|--|
| Department, Position | Department of Acute Medicine, Associate Professor |
| Institution | The University of Tokyo |

Kent Doi, M.D., Ph.D. is Associate Professor of Medicine in the department of Emergency and Critical Care Medicine at The University of Tokyo, Japan. He received his M.D. and Ph.D., and residency training at the University of Tokyo Hospital followed by research nephrology training at NIH/NIDDK (2005-2007). Dr. Doi is a council member of the Japanese Society of Intensive Care Medicine, Fellow of the Japanese Society of Internal Medicine (FJSIM), Councilor and Board-Certified Nephrologist of the Japanese Society of Nephrology, Board Certified Senior Member of the Japanese Society for Dialysis Therapy.

Rinaldo Bellomo

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|-----------------------------|--|
| Department, Position | Department of Intensive Care, Director for Research |
| Institution | Austin Hospital |

Prof Bellomo is Director of Intensive Care Research at the Austin Hospital; Professor of Intensive Care Medicine, University of Melbourne; Honorary Professor, Monash University, Co-director of the Australian and New Zealand Intensive Care Research Centre, and an NHMRC Practitioner Fellow. He has produced >1500 PubMed cited publications and is the most published biomedical investigator in the history of Australian medicine. Since 2006, he has been the most published intensive care investigator in the world (>100 per annum for the past 5 years). He is now the most published Intensive Care Investigator in the world and was a member of the SCCM Sepsis working group that generated SEPSIS-3

Vin-Cent Wu 吳允升

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|------------------------|
| Short Biography |
| 台灣大學臨床醫學研究所博士 2000 |
| 台大醫院內科部主治醫師 85~迄今 |
| 台大醫院雲林分院內科部主治醫師 95~100 |

Hoi-Ping Shum

| | |
|-----------------------------|--|
| Department, Position | Department of Intensive Care, Consultant & Chief of Service |
| Institution | Pamela Youde Nethersole Eastern Hospital |

Dr Shum Hoi Ping, Chief of Service of the Department of Intensive Care, Pamela Youde Nethersole Eastern Hospital. After graduated from the Medical School of the University of Hong Kong in 1998, Dr SHUM started his Internal Medicine training and obtained his fellowship in Nephrology, Advanced Internal Medicine and Critical Care Medicine. Dr Shum's research interests are extracorporeal blood purification techniques, septic acute kidney injury, and infectious disease management. He has authored or co-authored > 100 publications on critical care, nephrology and infectious disease-related topics. He is currently the Hong Kong Society of Critical Care Medicine chairman, co-chair of the Hong Kong ICU outcome-monitoring program and the Critical Care Nephrology Course director in Hong Kong.

Peter PICKKERS

Professor of Experimental Intensive Care Medicine at Radboud University Nijmegen Medical Centre, Netherlands University/College of Higher Education: Radboud University Nijmegen
2014-present Section editor Intensive Care Medicine Experimental (journal of the European Society of Intensive Care Medicine)
2014-present Member guideline committee 'Sepsis', Dutch Society of Intensive Care
2014-2016 Co-chair (with prof dr M Netea) theme 'Infection and inflammation'

程遠揚

| | | |
|---------------|-----------------|------|
| 100年 ~ 105年 | 國立陽明大學臨床醫學研究所 | 博士 |
| 108年8月起 ~ 至今 | 台中榮民總醫院復健科 | 主任 |
| 107年2月起 ~ 至今 | 國立陽明交通大學醫學系 | 助理教授 |
| 101年2月~108年7月 | 台中榮民總醫院復健科 主治醫師 | |

Satoru Hashimoto

| | |
|-----------------------------|---|
| Department, Position | Department of Anesthesiology and Intensive Care Medicine, Director |
| Institution | Kyoto Prefectural University of Medicine |

Department of Anesthesiology and Intensive Care Medicine, Kyoto Prefectural University of Medicine, 465 Kajicho Kamigyo, Kyoto, Japan

University of Medicine (KPUM): 1981 - 1983

Instructor in Department of Anesthesiology, KPUM: 1984 - 1985

Instructor in ICU, Kyoto Children's Hospital: 1986 - 1990

Associate Professor in ICU, KPUM: 1991 - 2009

Director of Intensive Care Medicine: 2002 - present

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From Super PEEP to Belly Push: 50+ Years of Mechanical Ventilation of ARDS

Acute respiratory distress syndrome (ARDS) burst on the scene in the late 60's and early 70's and from the outset was noted to be positive end expiratory pressure (PEEP) responsive. By the mid 70's PEEP was firmly entrenched as ARDS therapy with papers published of treatment success even with very high levels of PEEP (40+ cm H₂O). With the advent of the ARDSnetwork more conservative levels of PEEP (lower and higher tabular assigned PEEP levels based on severity of ARDS) as well as predicted body weight based low tidal volume became the norm for treatment. More recently interest has turned to ventilator strategies that optimize compliance through monitoring of driving pressure as well as an understanding of the consequences of energy dissipation during the mechanical ventilation of ARDS in the form of mechanical power. Novel concepts have also been presented including increasing intra-abdominal pressure ("belly push") to lower EELV and potentially move end inspiration off of the upper deflection zone of the pressure volume curve.

Now That We Know It, How Do We Implement It?

In 2017, the World Health Organization recognized sepsis as a global health priority and proposed actions for reducing the global health burden. The resolution called for promoting research to develop innovative methods to prevent, diagnose and treat sepsis. Surviving sepsis has evolved over the past 50 years and will continue to advance over the next 50 years. We have experienced 30 years of failure in finding effective therapies for sepsis, which may be due to the animal models or selection of patients in clinical trials. Research in sepsis has also evaluated the definition of sepsis with a new definition, Sepsis-3, proposed in 2016. Failure in sepsis trials may be due to many factors. Yet there is promise on the horizon to fight sepsis, with exploration of biomarkers for theranostics, predictive and prognostic enrichment, immune enhancement therapy, leveraging the microbiome, patient selection, move towards stratified and precision medicine, and predictive analytics. Surviving sepsis in 2071 may include revisiting previously failed drugs and treatments, incorporating biomarkers and artificial intelligence into diagnosis and treatment as well as other high tech methods to monitor patients' response to treatments.

Little Big Data – Data Driving Change and Improvement

There has been increasing interest in Big Data across sectors of healthcare. Critical Care is no exception given the sheer volume of data recorded on each patient who is admitted to the intensive care unit. Large patient databases such as MIMIC has now been complemented with national datasets in the UK, the Netherlands, etc. Analysis of such pooled data has improved our understanding and knowledge of conditions such as sepsis and traumatic brain injury.

However, these multicentre, national databases can seem disconnected from the clinician in their individual ICU. Indeed, it can seem intimidating.

My talk address on how simple, practical and pragmatic steps can be taken at local level to understand local data and improve patient care by adopting a data driven approach. This is illustrated by examples. Not everyone needs to master R, Python, Sqletc to get involved in data science.

Year in Review: Top 10 Articles

The topic of my speech is a year in review of the most relevant and impactful articles between 2020-2021. 10 articles published over the course of last year will be presented. The talk will delve into each article's purpose, methodology, results, and overall impact on current medical practice. Given the unprecedented impact COVID-19 has had on global health and healthcare, the primary focus of my talk will be on the pandemic. However, other relevant and practice changing studies will also be included.

Exploring the International Microcirculation Network Using Artificial Intelligence

The use of AI/ML algorithms has gained much interest for analyzing high-dimensional clinical data with the aim to diagnose underlying pathology, predict the course of disease and outcome, and assist

physicians in the choice of personalized treatments. We have been exploring AI/ML applications in different clinical settings related to critical illness. An essential component needed for the development of AI/ML prediction algorithms is the availability of large data sets consisting of complete and standardized data. The importance of the recent COVID-19 pandemic has led us to set up a multinational database of COVID-19 patients (RISC-19-ICU database) consisting of more than 3,500 patients by the end May 2021 (1). We have used this database to explore the utility of AI/ML methodologies to predict the course of COVID-19 disease in the ICU. In order to maximize the performance of the model but limiting the risk of overfitting it is important to identify the optimal AI/ML algorithm suited for a particular data set and purpose of the prediction model. We chose to apply to our data set the extreme gradient Boosting (XGBoost) algorithm as an AI methodology having superior properties in terms of performance, capacity to handle missing data without requiring imputation, low risk of overfitting, and high interpretability compared to other AI/ML algorithms. As a consequence, we could successfully predict improvement or worsening of the SOFA score of COVID patients five days following their presentation at the ICU.

Mechanical Ventilation and COVID-19

Coronavirus disease 2019 (COVID-19) can progress in a subset of patients to acute respiratory distress syndrome (ARDS), which often requires intubation and mechanical ventilation. This topic discusses the management and prognosis of the intubated patient with COVID-19. Clinical features and respiratory care of the non-intubated patient with COVID-19 and management of the hospitalized adult with COVID-19 are discussed separately.

Individualized antiplatelet strategy for ACS patients endorsed by the latest guidelines

A new option for stroke prevention in patients with recent minor stroke or TIA : Ticagrelor Added Aspirin

Among patients with an acute ischemic stroke or transient ischemic attack (TIA), the risk of a subsequent ischemic stroke is approximately 5 to 10% in the first few months. Aspirin has been used to prevent a stroke in these patients, and two trials have shown that the combination of aspirin and clopidogrel, an antiplatelet agent that blocks the P2Y12 receptor on platelets, reduced the risk of stroke and other major ischemic events in this population. Clopidogrel requires hepatic conversion to its active form through a pathway that is inefficient in 25% of white and 60% of Asian patients, and efficacy is uncertain in these patients.

Rapid Response System

A robust rapid response system has been showed to reduce the incidence of cardiac arrest as well as result in improved outcomes after cardiac arrest. An effective rapid response system constitutes both an afferent limb that can accurately identify deteriorating patient as well as a responsive efferent limb that provides timely care. The use of automation can improve the responsiveness of the system. We demonstrate the use of the automated code blue and code red system in our hospital and its impact on patient outcomes as well as some of the pitfalls that can occur with automation.

Targeted Temperature Management for Severe Subarachnoid Hemorrhage

Introduction: To mitigate initial brain injury, we have been using targeted temperature management (TTM) at 34°C in patients with WFNS grade V subarachnoid hemorrhage (SAH). We sought to study the feasibility and effects of endovascular cooling after rewarming during a high-risk period for delayed cerebral ischemia.

Results: There were no significant differences in gender (female, 60% each), age (60.0 vs. 61.6 years), the Glasgow Coma Scale score (4.1 vs. 4.2), modified Fisher CT classification, aneurysm location (anterior circulation, 77% vs. 89%), and treatment (clipping, 83% vs. 94%) between the endovascular cooling group and control. Significant differences were detected in: number of patients with fever above 38 °C, 12 vs. 26 patients ($p = 0.0007$); mean duration above 38 °C, 4.1 vs. 19.3 hours ($p = 0.0019$); vasospasm-related cerebral infarction, 2 vs. 14 patients ($p = 0.0003$). There was a trend toward favorable outcomes (GR or MD by the Glasgow Outcome Scale) at six months in the endovascular cooling group (57% vs. 34%, $p = 0.054$).

Conclusion: Fever was controlled better with an endovascular cooling system after TTM at 34°C. Elimination of fever was associated with a lower incidence of vasospasm-related infarction and may improve outcome in severe SAH.

Taiwan's Response to COVID-19

Coronavirus disease 19 (COVID-19) is a global health threat and causes significant medical, economic, social and political implications since Jan. 2020. Several strategies for combating COVID-19 have been adopted across countries, but confirmed cases are still rising in the world. From its 2003 SARS experience, Taiwan's government established a public health response mechanism for enabling rapid actions for this crisis. The strategies for COVID-19 control in Taiwan included big data analytics, new technology, and proactive testing. Based on early recognizing and managing the crisis, effective communications and politics, Taiwan Central Epidemic Command Center (CECC) has used several strategies to control COVID-19 transmission. This speech will discuss Taiwan CECC how to respond adequately to a crisis and protect the welfares of citizens.

Singapore Intensive Care and the Fight Against COVID-19

It has been two years of ups and downs in Singapore's fight against COVID-19. Not long after a relatively good start at keeping the disease at bay, the number of cases ballooned across the island nation in 2020, in large part due to outbreaks in dormitories for migrant workers. One year later, even as the country's vaccination rates became one of the highest in the world, the number of cases rose exponentially again, this time round in the larger community. This talk will describe Singapore's public health response towards the pandemic, with a focus on its approach for intensive care.

Septic Cardiomyopathy: What's New

The septic cardiomyopathy can be defined as a cardiac dysfunction that is unrelated to ischemia in patients with sepsis. Depending on the technique used for its detection, a large proportion (20-65%) of patients with septic shock experience some degree of septic cardiomyopathy. The vasoplegia resulting from septic vascular dysfunction usually offsets the cardiac dysfunction and most patients exhibit a hyperdynamic shock (high cardiac output and low resistance) following resuscitation. However, a subset of patients have a severe cardiac dysfunction and have an authentic cardiogenic shock. This dysfunction may affect the left or the right ventricle, or both; it may also involve systolic or diastolic function of the heart. No single parameter can be recommended to characterize the cardiac dysfunction, but the most important for the ICU physician is certainly the aortic velocity-time integral that reflects stroke volume, which is a major determinant of tissue perfusion (along with mean arterial pressure) and constitutes an endpoint of resuscitation. Recently, a retrospective multicenter study strongly suggested the benefit of veno-arterial ECMO on the probability of survival of patients with septic shock having a low cardiac index, high serum lactate and high-dose inotropes. This constitutes the most important change of paradigm in the management of patients with septic cardiomyopathy reported recently.

Artificial Intelligence for Sepsis Management

Sepsis is a major cause of mortality in critical ill patients. Several factors contribute to the outcomes of sepsis, including the immunity and underlying conditions of patients, the characteristics of pathogens, the infection foci, and the treatment modalities. Although much efforts have been made to improve the care of sepsis patients, the morbidity and mortality of sepsis remain high. Artificial intelligence (AI) is an emerging field that may support the care of patients. AI-derived algorithms can be used to develop early detection system, clinical decision support systems, and outcome detection system. However, some challenges remain while deploying this innovative caring tool in daily clinical practice.

Ultrasound and Echocardiography in COVID-19

This talk will discuss the incidence and implications of abnormal ultrasound and echocardiographic findings in patients with COVID-19. In addition to characterizing these abnormalities and their associations with clinical outcomes, the talk will examine the challenges with interpreting these data, and the potential applications for guiding therapy.

Estimating Sepsis Burden: Challenges and Opportunities

The 2017 global annual burden of sepsis is estimated at 48.9 million cases and accounted for 11 million deaths. This was at least 2.5 times higher than previous estimates on burden of sepsis in 2016 which was mainly derived from income country data alone. The latest estimates provide a more accurate global estimate by using death certificates, sepsis mortality rates and diagnostic coding from Global Burden of Diseases, Injuries, and Risk Factors Study. However, reliance on accurate attributed causes of death, assumptions from local sepsis mortality rates and biases from sepsis diagnostic codes impede the fidelity of the estimates.

Challenges in determining local, national and global sepsis epidemiology include changes in sepsis definition, awareness, coding practices and availability of diagnostic tools and data. Revisions of sepsis definition complicates longitudinal comparison over time unless historic datasets contain the same required parameters to define sepsis. Improvement in awareness and biases in coding practices alter sepsis estimates even when the actual incidence and mortality of sepsis has not changed. Lastly lack of national data and access to laboratory tests make it difficult to define cases using the latest Sepsis 3 definition. Nevertheless, increasing availability of local and national electronic health records creates an opportunity to provide more accurate estimates of sepsis burden.

Nutrition in Sepsis: A Bench-to-Bedside Review

Nutrition therapy in sepsis is challenging and differs from the standard feeding approach in critically ill patients. The dysregulated host response caused by infection induces progressive physiologic alterations, which may limit metabolic capacity by impairing mitochondrial function. Hence, early artificial nutrition should be ramped-up and emphasis laid on the post-acute phase of critical illness. Caloric dosing is ideally guided by indirect calorimetry, and endogenous energy production should be considered. Proteins should initially be delivered at low volume and progressively increased to 1.3 g/kg/day following shock symptoms wane. Both the enteral and parenteral route can be (simultaneously) used to cover caloric and protein targets.

病主法施行現況

《病人自主權利法》(簡稱病主法)，108年在台灣正式施行，其法賦予眾人以預立醫療決定(AD)的方式保障「善終權」的實現，是台灣第一部以「病人」為主體設計的醫療法規。而預立照護醫療諮商(ACP)為民眾簽署預立醫療決定(AD)前之重要家庭共商的過程。意願人可藉由預立醫療照護諮商(ACP)及完成預立醫療決定(AD)的過程，與家人對決定更有共識，面對最後一哩路時不再不知所措，提前安頓所愛之人的心，以達到美好善終的圓滿結果。

病主法的理想與現實

雖然病人自主權利法賦予預立醫療決定法效力，但它並不是一種萬靈丹，也不等同於病人自主的核心概念與價值，執行上，必須透過醫師與病人持續的對話，才能落實預立醫療決定在臨床上的應用與價值。病人真正的選擇意願，與其心智能力、決策思考的過程、乃至家庭社會的影響都有關係，落實上也將面臨許多難題。

重症安寧:成大經驗

推動重症安寧緩和照護一直是困難且具有挑戰性的任務。重症醫師被訓練為努力救治病人的專業醫師，但面臨好不了也走不掉的末期疾病狀態應該如何作為?本次講題希望能向大家介紹成大醫院重症安寧推動的歷程與方式。成大重症安寧始於面對末期病人的撤除議題，推動設立全院共通的撤除流程。後續透過安寧共同照護團隊努力，內化緩和醫療措施至平日護理照顧。時至今日重症照護接受了COVID-19的特別洗禮，病毒更加隔開加護病房病人與家屬間的距離。現代科技或許能協助克服此一隔閡

CRRT in Japan

Continuous renal replacement therapy (CRRT) is one of the most important life supportive therapies in intensive care units (ICUs) and frequently applied to critically ill patients complicated with severe acute kidney injury (AKI). However, previous studies have shown that the overall mortality of patients with AKI requiring CRRT is high—over 50%—indicating that further improvement is necessary for this unacceptable poor outcome. To examine recent trends in patient characteristics and mortality regarding RRT, including CRRT and intermittent RRT (IRRT), in Japanese ICUs, we conducted several observational studies with a nationwide claim database. From the Diagnosis Procedure Combination database in Japan from 2007 to 2016, adult patients with AKI who received RRT in ICUs were identified. We found 1) CRRT was more preferably selected compared to IRRT for patients treated by more vasoactive agents, 2) septic AKI patients treated by CRRT showed the highest mortality, and 3) a consistent decline in mortality from 2007 to 2016. These data suggest advantages of CRRT for severely ill ICU patients and temporal improvement of management for severe AKI.

Timing of Renal Replacement Therapy in ICU

The trials of timing of intervention have led to controversial findings that have been complicated by the use of IHD in a large percentage of patients. Thus, uncertainty continued until recently regarding the best time to intervene with CRRT in patients where equipoise exists. However, recently STARRT-AKI (Standard versus accelerated initiation of renal replacement therapy in acute kidney injury) trial was published. In patients where clinicians have equipoise for either intervening immediately or waiting for at least 24 hours, this trial randomized patients to accelerated vs. standard RRT and provided the highest quality evidence regarding timing of initiation of RRT. STARRT-AKI is by far the largest RRT trial ever conducted. It randomized 3019 patients at 168 hospitals in 15 countries. RRT was performed in 96.8% of accelerated-strategy patients and 61.8% of patients in the standard therapy patients, where RRT was discouraged unless conventional indications developed or AKI persisted for >72 hours. At 90 days, death had occurred in 43.9% vs. 43.7% in each group, respectively. However, as 90 days, continued dependence on RRT was found in 10.4% of patients in the accelerated-strategy group vs. 6.0% in the standard-strategy group, with a 74% point estimate relative increase in risk of being dialysis-dependent at 90 days with accelerated RRT. There was also an excess of adverse events in the accelerated RRT group ($P < 0.001$). In patients where clinicians have equipoise for either intervening early or waiting, these findings now provide strong supportive evidence that an expectant strategy is safer.

Biomarker of Persistent Acute Kidney Injury in Critical Care: Another Gemstone in the Jewelry Box

Acute kidney injury (AKI) is associated with higher risk of chronic kidney disease (CKD), end stage renal disease (ESRD) and long-term adverse cardiovascular effects. Critically ill patients with acute kidney injury (AKI) requiring renal replacement therapy (AKI-RRT) have a poor prognosis. Currently, a few urinary AKI biomarkers have been proposed to predict renal recovery, however with limited discrimination. The aim of the current study is to validate the predictive performances of novel biomarkers that identify critical patients with AKI who would more likely successfully wean off RRT. Currently, criteria used when considering RRT discontinuation include clinical status, timed urine creatinine clearance, and urine output. While previous high-quality studies have developed criteria to consider when deciding to stop RRT, there is high heterogeneity among these studies, highlighting the need for greater consensus. We hypothesized that several potential urinary AKI biomarkers could accurately predict successful weaning of AKI-RRT. The objective of this study is to determine which urinary biomarker(s) in critically ill patients with AKI-RRT, measured at time of weaning off RRT, can accurately predict 90-day dialysis-free (RRT-free), 90-day survival, and the risk of re-dialysis in those who had tried to wean off RRT (RRT-dependent).

Hemoperfusion: Current Practice

Hemoperfusion is an extracorporeal blood purification modality whereby blood is passed through a sorbent system to remove specific toxic substances. It is used to eliminate drugs/ toxin from those with poisoning, take out endotoxin/ cytokines/pathogens from those with severe sepsis and remove auto-antibodies from those with immune-mediated disorders. This talk focuses on the clinical application of hemoperfusion in the ICU setting and discusses the pros and cons of this technique.

Introduce European Experience of oXiris

Septic shock is a leading cause of acute kidney injury (AKI). Endotoxins and cytokine levels are associated with the occurrence and severity of AKI, and different blood purification devices are available to remove them from circulation. One such device, oXiris, is a hollow-fibre purification filter that clears both endotoxins and cytokines. Due to limited evidence, clinical use of this device is not currently advocated in guidelines. However, clinics do regularly use this device, and there is a critical need for guidance on the application of it in sepsis with and without AKI. In the absence of established guidelines, users of hollow-fibre purification devices such as oXiris may benefit from standardised approaches to selecting patients and initiating and terminating treatment, as well as measuring success. Further evidence in the form of randomised clinical trials is urgently required.

CRISIS Database for Critically Ill COVID-19 Patients in Japan

On February 12 2020, we decided to establish national-wide registry system, (CRISIS), for the COVID-19 patients who require mechanical ventilation (MV) and/or extracorporeal membrane oxygenation, ECMO. The core system of CRISIS was established within 5 days using low code programming platform, FileMaker on Amazon Web Services. Meanwhile, we recruited over 700 ICUs (covering 80% of total national ICUs) in Japan using ICU databases stored by Japanese Society of Intensive Care Medicine, and Japanese Association for Acute Medicine. Since February 2020, over 700 patients who required ECMO and 5500 patients who required MV (without ECMO) were registered as of June 2021. We are assuming over 90 % of ECMO cases and is 75 % cases of MV were registered in the CRISIS overall. As national census counts nearly 800,000 PCR positive cases so far, about 1 % of COVID-19 patients required ECMO and/or MV. Survival rate was about 60 % in ECMO and 75% in MV patients, and about 1500 patients could not survive in spite of these intensive care measures. As total death due to COVID-19 in Japan are nearly 15,000, 90 % of the patients deceased without MV and/or ECMO. Comfort care or best supportive care were applied on these patients as they are too old or have serious comorbidity.

ECPR in Cardiac Arrest

Introduction:

The importance of extracorporeal cardiopulmonary resuscitation (ECPR) has been established in recent years. Many researches confirm the survival benefit of ECPR comparing to traditional cardiopulmonary resuscitation (CPR). However, the evidence of ECPR is still not strong enough and the protocol for ECPR is different from each medical institution. Our main purpose is to build up an ECPR team and an acceptable protocol to improve the outcomes of patients with cardiac arrest.

Results:

There were 26 patients with OHCA and 11 patients with IHCA received ECPR. The cause of cardiac arrest includes acute myocardial infarction (n=20), acute aortic dissection (n=6), pulmonary embolism (n=2), and other (n=9). The ECMO weaning off rate is 43.2% and survival rate at 30-day is 32.4%. All patients included have witness CPR. The mean total low flow time is 47.5 minutes and the mean ECMO set up time is 22.5 minutes.

Conclusion:

ECPR is associated with fair survival outcome for the patients with cardiac arrest. Build up a mature team and set an acceptable protocol for ECPR is the key to success.

Disruptive Behavior in Medical Field

Disruptive behavior in medical fields began to be officially addressed recently. It has been treated as a personal issue and has been underestimated so far. However, disruptive behavior of healthcare professionals can lead to serious consequences to the patients as well as the healthcare providers.

Disruptive behavior by healthcare professionals often occurs in stressful environments such as intensive care unit, operating room or emergency department.

We are going to review the definition of disruptive behavior and its impact on clinical outcomes.

We also check how to recognize it early and prevent and/or manage it in stressful situations.

Post-Intensive Care Syndrome (PICS)

Post-Intensive Care Syndrome PICS is the long-term symptoms in the surviving patients after critical care, mainly including physical and cognitive dysfunction and mental illness. Through surviving rate rising, PICS has been raised as one of the most important problems in critical care medicine. Various approaches from intensive care period to after-discharge were discussed as the PICS countermeasures, including ABCDEF bundles. However, it is often difficult for the intensivists and ICU staffs to see the patients' PICS, because the PICS evaluation is originally difficult for them by a number of barriers. One of approaches to evaluate PICS is the PICS clinic operation, in which the physicians or nurses examine the out-patients after critical care. Although the PICS clinic has not been widely operated in Asian countries, we opened the PICS clinic on a large scale in Hitachi General Hospital from 2019, and examined a lot of patients with PICS by the intensivists, nurses and physiotherapists. The other PICS evaluation methods are the visitation or questionnaire survey with telephone, mail post or online form, usually for study purpose. I would like to present what is PICS and how to counteract the progression with our current PICS studies including our PICS clinic and COVID-19 related issues.

Development of BI in ICU Operation Management

如何運用經營模版改善加護病房照護流程

醫療照護品質管理在世界上均廣泛被討論並重視，目前傳統的電腦作業工作效率較低，缺乏即時性且無法全面性的看到整體的情況，因此將運用商業智慧技術概念，整合醫院資訊系統內既有資料，主動偵測出問題的發生率，並透過持續性的監測與管理，即時且互動的對組織的關鍵性衡量指標進行評估，協助品管人員獲得即時且完整的決策參考資訊。

Using Patient Flow Management to Improve the Care Quality of ICU

Intensive care units are a limited and expensive resource. Crowding in the emergence department (ED) is a common issue. Reduced ICU bed availability can adversely affect hospital-wide patient throughput, especially within the ED and postsurgical care areas, and increase mortality of critically ill patients due to prolonged wait times for ICU bed assignment. We should provide the patient right care, at right time and right place.

Based on the Donabedian model: structure, process, and outcome, we approach the patient flow management of intensive care units, including the following (1) number of beds for each unit, (2) patient type and priority level, (3) timing of patient arrival, (4) patient prioritization for admission, and (5) unit length of stay. In order to smooth the flow, we have to link a defined population to appropriate capacity using an efficient process. The following questions should be checked: 1. What populations are experiencing flow problems, and what are their needs? 2. What capacity is most suitable for meeting the identified needs? 3. What process does this population currently experience? 4. What alternative process(es) could straightforwardly link the population to suitable capacity, avoiding the constraint? Using the lean method, integration of diverse information technology may create further opportunities for improved hospital capacity. We have to pay attention to patient flow variability caused by the inadequate allocation of capacity and the lack of coordination between up-and-down-stream units.

Quality and Performance Improvement in Intensive Care Units

The quality and safety in critical care received more and more value in recent decades. Increasing adherence to evidence-based guidelines, decreasing variation, measuring outcomes and monitoring processes are critical for improving quality care in intensive care units (ICUs).

Digitizing ICU is an important part to improve quality care. However, Digitizing ICU is not only configured the system from paper chart to digital charting system, but also applied variety of smart features in ICU system to assist medical staff's daily work. Central venous catheter (CVC), catheter-associated urinary tract infections (CAUTI), and ventilator associated pneumonia (VAP) bundle care were designed into this system to decrease infection rate and decrease ventilator weaning days. Patient discharge advisory is also applied to inform physician by smart healthcare system via different parameters, including heart rate, oxygen use, SatO₂, respiratory, coma scale, etc. Currently, ICU applied *Pain Agitation Delirium Immobility and Sleep (PADIS)* evaluation to well control patients' pain releasing and apply physical medicine in ICU to improve patients' recovery. Smart healthcare system in ICU combine medical knowledge and creativity thinking to provide comprehensive quality care for critical patients.