



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Heart, Lung and Circulation in the COVID-19 Era: About COVID-19, Not Just About COVID-19



Ann T. Gregory, MBBS, GradCertPopHealth^{a,1},
A. Robert Denniss, MD, MSc, FCSANZ^{a,b,c,*}

^aHeart, Lung and Circulation, Sydney, NSW, Australia

^bDepartment of Cardiology, Westmead Hospital, and University of Sydney, Sydney, NSW, Australia

^cDepartment of Cardiology, Blacktown Hospital, and Western Sydney University, Sydney, NSW, Australia

Keywords

COVID-19 • Position statements • Cardiovascular innovations • Bibliometrics

In March 2020, our world entered the COVID-19 era [1], and we have all since been experiencing waves of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic [2]. The effect of COVID-19 on our populations and health care systems has been, and continues to be, significant. The global pandemic has also affected scientific medical publishing, with an acknowledged disrupting effect, including a faster track to peer review and on-line publication for COVID-19 submissions but with stress on the peer review and publication of non-COVID-19 research [3]. At the recent virtual 69th Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand (CSANZ), *Heart, Lung and Circulation* (HLC) presented a joint, invited session with the *European Heart Journal* about their respective journal highlights in 2020, chaired by HLC's Editor-in-Chief Professor A. Robert Denniss. This editorial presents an overview of HLC's highlights in the 2020 volume (Volume 29), including those presented in that session; it also proposes some likely highlights of the current 2021 volume (Volume 30), which ends with this December 2021 edition. How is the COVID-19 pandemic affecting *Heart, Lung and Circulation* content? Is it all about COVID-19 now? Is any other published content also attracting attention?

2020: The First Year of COVID-19

There is no question that COVID-19 dominated the *Heart, Lung and Circulation*'s hit-list in 2020, with about half of the

combined “top 10” lists of most cited articles (Table 1), most downloaded articles (Table 2), and articles with most on-line attention (Table 3), being directly related to COVID-19. Contributions, all available freely as part of the Journal's online Digital Collection of COVID-19 articles, addressed the acute cardiovascular issues, changes in model of care, and possible long-term implications [4].

With a high of 25 citations (Scopus) at time of writing, Dhakal *et al.*'s narrative review *SARS-CoV-2 Infection and Cardiovascular Disease: COVID-Heart* summarised cardiovascular disease management in COVID-19 patients, including management of fulminant myocarditis, life-threatening arrhythmias and refractory shock [5]. Arnold's discussion paper, which suggested a possible role of the renin-angiotensin system (RAS) in the pathophysiology of COVID-19 was among the most requested articles [6], as was Kasal *et al.*'s review of COVID-19 and microvascular disease, also with a focus on the RAS [7].

Changes in models of care were outlined in a series of 10 comprehensive CSANZ Statements in different aspects of cardiovascular practice—with a quartet represented in the year's 10 tables relating to interventional cardiology services [8], acute heart failure and assessing the critically ill [9], rural and remote cardiology [10] and cardiac rehabilitation and secondary prevention [11]. All statements addressed how to provide safe care for all patients and health care workers while managing COVID-19 or the risks of exposure to the SARS-CoV-2 coronavirus.

*Corresponding author at: Email: journal@csanz.edu.au; Twitter: @heartlungcirc

¹Commissioning Editor.

²Editor-In-Chief.

While telehealth and other e-health initiatives were foreshadowed by Nicholls *et al.* to have positive implications for longer term use beyond the pandemic [11], concerns were raised about other not-so-positive longer-term implications—a “tsunami” of non-COVID-19 acute cardiac conditions as a consequence to a COVID-19-related delay in seeking care for chronic cardiovascular conditions [12,13], as well as the mental health and psychosocial challenges of the pandemic [14]—appreciated all too readily by those of us living in lockdown conditions for extended periods of time.

Perhaps this COVID-19 domination in 2020 should come as no surprise: COVID-19 is at the top (ie, number 1) of the popular US commentator Dr John Mandrola’s Top 10 in Cardiology for 2020: Mandrola wrote that: “before 2020, heart disease and cancer dominated medical news: the COVID-19 pandemic reset all that” [15].

2020: Not Just COVID-19

There *are* other remarkable “non-COVID-19” contributions in the same volume of *Heart, Lung and Circulation*. For example, to-date, Zentner *et al.*’s co-authored CSANZ *Position Statement on the Management of People with a Fontan Circulation* has been downloaded more times than any other article published in the 2020 volume. It is notable for its truly collaborative approach involving not only a multidisciplinary group of health care providers but also individuals with a Fontan circulation and their families [16].

The Special Issue for the Year 2020—about Genetic Heart Diseases—with esteemed Guest Editors Semsarian (now Editor-in-Chief of *Circulation: Genomic and Precision Medicine*), Atherton and Skinner, has also garnered much interest [17]. This compilation of commissioned State-of-the-Art reviews, published in April 2020, was intended to be launched at the International Clinical Cardiovascular Genetics Conference meeting—since “rescheduled” twice (from May 2020 to May 2021, and then again to May 2022) due to COVID-19 pandemic-related lockdowns and travel restrictions. The most highly requested article in the issue has been Ingles *et al.*’s review on genetic testing in inherited heart disease [18], since referenced in the *American Journal of Preventive Cardiology*’s succinct overview of things to know about 10 common cardiovascular disease (CVD) risk factors applicable to preventive cardiology, including genetics [19]. Ingles *et al.* describe the specifics of genetic testing for a range of disease settings—hypertrophic, dilated, restrictive and arrhythmogenic cardiomyopathies, left ventricular non-compaction, catecholaminergic polymorphic ventricular tachycardia, familial hypercholesterolaemia, long QT and Brugada syndromes, and heritable thoracic aortic disease. Given the nuances and challenges of cardiac genetic testing, they advise the consensus is that the best outcomes for the patient and their family are achieved when genetic testing is offered in a specialised multidisciplinary clinic with access to genetic counselling [18].

Skinner *et al.*’s comprehensive review on the clinical and genetic aspects of cardiac ion channelopathies that lead to sudden cardiac death is among the most cited articles in *Heart, Lung and Circulation* within the past 3 years. Cardiac ion channelopathies are described as the prime suspects in sudden death with a negative autopsy; each channelopathy has its own electrocardiographic (ECG) signature, typical mode of presentation, and most-commonly related gene [20].

Also drawing attention in the Genetic Heart Diseases edition is Bart *et al.*’s review on amyloid cardiomyopathy [21]. Considered an under-diagnosed disorder, amyloid cardiomyopathy is characterised by extracellular deposition of amyloid fibrils that form due to misfolding of secreted light chains or transthyretin protein. Until the very recent advent of disease-modifying treatments, amyloid cardiomyopathy has generally been considered a progressive, and potentially fatal, disease. An “inaugural treatment” for transthyretin amyloid cardiomyopathy, tafamidis (a benzoxazole derivative), is listed as number 3 in the Cleveland Clinic’s “Top 10” medical innovations for 2020 [22]. In recent deliberations for *Heart, Lung and Circulation*’s annual Best Review Prize, Bart was Highly Commended as first author of this review.

Heart, Lung and Circulation’s Best Review Prize formally recognises and acknowledges the efforts of early career authors and was first awarded in 2015 [23]. The Best Review Prize for 2021 (judged for the 2020 volume) was awarded to Harky, a UK-based cardiothoracic surgery registrar, as first author of the narrative review about the rapidly evolving and expanding practice of robotic cardiac surgery [24], including in coronary revascularisation, mitral valve surgery, atrial fibrillation surgery, left ventricular lead implantation, atrial septal defect closure, and summary for atrial myxoma; the use of robotics in atrial valve surgery is reported to be very much in the early phase of development. Harky *et al.*’s review has 19 Scopus citations at time of writing. Also Highly Commended was Thakkar, first author of a systematic review about masked hypertension [25].

The Journal now also recognises outstanding original research each year with three distinct classes of awards: High Impact Awards, first awarded in 2017 [26]; the Franklin Rosenfeldt Award, named in honour of this Journal’s first Editor-in-Chief, for innovation in clinical research in the field of cardiac and thoracic surgery, first awarded in 2019; and the Cardiovascular Science Award, also first awarded in 2019. Both the Franklin Rosenfeldt Award and the Cardiovascular Science Award recognise outstanding contributions from an Australasian-based author (or authors).

Although *Heart, Lung and Circulation*’s High Impact Awards can go to research conducted by authors located anywhere in the world (and address any topic), winners for the 2020 volume (awarded in 2021) were all based in Australia. Two (2) of the three awards related to cardiovascular risk. An award for most citations (15 Scopus citations at time of writing) went to Sultani *et al.* who, in a group of

Table 1 *Heart, Lung and Circulation's* most cited articles (Volume 29, 2020).^a

Rank	First Author	Country of Origin	Title	Article Type	Print Publication	On-Line Publication	Number of Citations
1	Dhakal	USA	SARS-CoV-2 Infection and Cardiovascular Disease: COVID-Heart	Review	2020;29(7):973-987	Jun 5, 2020	25
2	Harky	UK, Hong Kong	The Future of Open Heart Surgery in the Era of Robotic and Minimal Surgical Interventions	Review	2020;29(1):49-61	May 27, 2019	16
3	Allahwala	Australia	Cardiovascular Disease in the Post-COVID Era—The Impending Tsunami	Editorial	2020;29(6):809-811	Apr 16, 2020	15
4	Sultani	Australia	Elevated Triglycerides to High-Density Lipoprotein Cholesterol (TG/HDL-C) Ratio Predicts Long-Term Mortality in High-Risk Patients	Original Article	2020;29(3):414-421	Apr 9, 2019	13
5	Lo	Australia	Consensus Guidelines for Interventional Cardiology Services Delivery During COVID-19 Pandemic in Australia	Consensus Guidelines	2020;29(6):e69-e77	May 6, 2020	12
6	Zentner	Australia	Management of People with a Fontan Circulation: A Cardiac Society of Australia and New Zealand Position Statement	Position Statement	2020;29(1):5-39	Nov 14, 2019	11
7	Shamloo	Germany	Atrial Fibrillation and Cognitive Impairment: New Insights and Future Directions	Review	2020;29(1):69-85	Jun 18, 2019	10
7	Mirna	Austria, Germany	Analysis of Novel Cardiovascular Biomarkers in Patients With Pulmonary Hypertension (PH)	Original Article	2020;29(3):337-44	Mar 26, 2019	10
7	Nicholls	Australia	Optimising Secondary Prevention and Cardiac Rehabilitation for Atherosclerotic Cardiovascular Disease During the Covid-19 Pandemic: A Position Statement From the Cardiac Society of Australia and New Zealand (CSANZ)	Position Statement	2020;29(7):e99-e104	May 6, 2020	10
10	Astley	Australia	The Impact of Cardiac Rehabilitation and Secondary Prevention Programs on 12-Month Clinical Outcomes: A Linked Data Analysis	Original Article	2020;29(3):475-482	Apr 12, 2019	9
10	Pang	Australia	Familial Hypercholesterolaemia in 2020: A Leading Tier 1 Genomic Application	Review	2020;29(4):619-633	Dec 18, 2019	9
10	Arnold	Australia, New Zealand	Rural and Remote Cardiology During the COVID-19 Pandemic: Cardiac Society of Australia and New Zealand (CSANZ) Consensus Statement	Consensus Statement	2020;29(7):e88-e93	May 6, 2020	9

^aScopus database (Accessed 05/07/2021).

Table 2 Heart, Lung and Circulation's most requested articles (Volume 29, 2020).^a

Rank	First Author	Countries of Origin	Title	Article Type	Print Publication	On-line Publication	Number of Downloads
1	Zentner	Australia	Management of People With a Fontan Circulation: A Cardiac Society of Australia and New Zealand Position Statement	Position Statement	2020;29(1):5-39	Nov 14, 2019	4,379
2	Dhakal	USA	SARS-CoV-2 Infection and Cardiovascular Disease: COVID-Heart	Review	2020;29(7):973-987	June 5, 2020	2,897
3	Arnold	Australia	COVID-19—Does This Disease Kill Due to Imbalance of the Renin Angiotensin System (RAS) Caused by Genetic and Gender Differences in the Response to Viral ACE 2 Attack?	Discussion Paper	2020;29(7):964-972	May 25, 2020	2,123
4	Tran-Duy	Australia	Development and Use of Prediction Models for Classification of Cardiovascular Risk of Remote Australians	Original Article	2020;29(3):374-383	Feb 16, 2019	1,922
5	Nicholls	Australia	Optimising Secondary Prevention and Cardiac Rehabilitation for Atherosclerotic Cardiovascular Disease During the COVID-19 Pandemic: A Position Statement From the Cardiac Society of Australia and New Zealand (CSANZ)	Position Statement	2020;29(7):e99-e104	Apr 30, 2020	1,614
6	Al Raisi	Australia	Renal Artery Denervation in Resistant Hypertension: The Good, The Bad and The Future	Review	2020;29(1):94-101	July 9, 2019	1,583
7	Carnes	Australia	Biomarkers in Heart Failure With Preserved Ejection Fraction: An Update on Progress and Future Challenges	Review	2020;29(1):62-68	July 5, 2019	1,492
8	Ingles	Australia	Genetic Testing in Inherited Heart Diseases	Review	2020;29(4):505-511	Nov 29, 2019	1,337
9	Kasal	Brazil	COVID-19 and Microvascular Disease: Pathophysiology of SARS-CoV-2 Infection With Focus on the Renin-Angiotensin System	Review	2020;29(11):1595-1602	Sep 2, 2020	1,334
10	Wu	China, Japan, New Zealand, Australia, Singapore, Korea, Taiwan	Retrograde Versus Antegrade Approach for Coronary Chronic Total Occlusion in an Algorithm-Driven Contemporary Asia-Pacific Multicentre Registry: Comparison of Outcomes	Original Article	2020;29(6):894-903	July 2, 2019	1,199

^aElsevier data (at 26/05/2021).

patients who underwent coronary angiography in a prospective cohort study, found that an elevated triglycerides to high density lipoprotein cholesterol (TG/HDL-C) ratio is an independent predictor of long-term all-cause mortality and

strongly associated with an increased risk of a major adverse cardiac event [27]. Tran-Duy *et al.* received a High Impact Award for most downloads—they developed a seven-factor risk score that could stratify 5-year risk of

Table 3 *Heart, Lung and Circulation's* articles with most on-line attention (Volume 29, 2020).^a

Rank	First Author	Countries of Origin	Title	Article Type	Print Publication	On-line Publication	Alternative Metrics
1	Dhakai	USA	SARS-CoV-2 Infection and Cardiovascular Disease: COVID-Heart	Review	2020;29(7):973-987	June 5, 2020	258
2	O'Neil	Australia	Mental Health and Psychosocial Challenges in the COVID-19 Pandemic: Food for Thought for Cardiovascular Health Care Professionals	Commentary	2020;29(7):960-963	May 21, 2020	185
3	Zentner	Australia	Management of People With a Fontan Circulation: A Cardiac Society of Australia and New Zealand Position Statement	Position Statement	2020;29(1):5-39	Nov 14, 2019	184
4	Nicholls	Australia	Optimising Secondary Prevention and Cardiac Rehabilitation for Atherosclerotic Cardiovascular Disease During the COVID-19 Pandemic: A Position Statement From the Cardiac Society of Australia and New Zealand (CSANZ)	Position Statement	2020;29(7):e99-e104	Apr 30, 2020	176
5	Arnold	Australia, New Zealand	Rural and Remote Cardiology During the COVID-19 Pandemic: Cardiac Society of Australia and New Zealand (CSANZ) Consensus Statement	Consensus Statement	2020;29(7):e88-e93	May 6, 2020	146
6	Lal	Australia, New Zealand	COVID-19 and Acute Heart Failure: Screening the Critically Ill—A Position Statement of the Cardiac Society of Australia and New Zealand (CSANZ)	Position Statement	2020;29(7):e94-e98	May 1, 2020	143
7	Denniss	Australia	Cardiovascular and Logistic Issues Associated with COVID-19 Pandemic	Editorial	2020;29(5):655-656	Apr 10, 2020	142
8	Lo	Australia	Consensus Guidelines for Interventional Cardiology Services Delivery During COVID-19 Pandemic in Australia	Consensus Guidelines	2020;29(6):e69-e77	May 6, 2020	140
9	Sultani	Australia	Elevated Triglycerides to High-Density Lipoprotein Cholesterol (TG/HDL-C) Ratio Predicts Long-Term Mortality in High-Risk Patients	Original Article	2020;29(3):414-421	Apr 9, 2019	121
10	Allahwala	Australia	Cardiovascular Disease in the Post-COVID Era—The Impending Tsunami	Editorial	2020;29(6):809-811	Apr 16, 2020	118

^aPlumX Metrics (at 26/05/2021).

cardiovascular disease in an Indigenous Australian cohort to a greater degree compared to a recalibrated Framingham risk score [28].

The Franklin Rosenfeldt Award for the 2020 volume was awarded jointly to Chatterton *et al.* [29] for reporting a prospective pilot study of a preoperative predictor of

postoperative bleeding (and need for subsequent transfusion) and Royse *et al.* [30] for presenting early experience of a novel reconstruction for total arterial coronary revascularisation—two radial arteries (RA) joined as a Y graft (RARAY).

Regrettably, no Cardiovascular Science Award could be given in 2021 (for the 2020 print year), as there were no qualifying Australasian-authored contributions in that volume. This is disappointing, as this Journal is committed to supporting the cardiovascular science research sector by publishing articles across the spectrum of relevance to cardiovascular health—from bench to bedside and beyond. In a Discussion Paper, Climie *et al.* presented the results of an online survey of cardiovascular research employees or students conducted in 2019—prior to the COVID-19 pandemic [31]. They concluded that a lack of strategic funding and long-term job security threatened to have profound effects on cardiovascular researcher retention in Australia. Strategic solutions proposed included: diversification of career pathways and funding sources; and, moving from a competitive to a collaborative culture. The challenges that cardiovascular researchers face is an international concern, with Climie and Marques writing in *Circulation* about the impact, strategies, and opportunities for early and mid-career cardiovascular researchers during the COVID-19 pandemic [32]. Strategic opportunities including promoting awards, and we hope to receive more submissions in 2022 that can be considered for *Heart, Lung and Circulation's* Cardiovascular Science Award.

On balance, and notwithstanding the arrival of the COVID-19 era, the leading contributions in 2020 include position statements, theme issues, discussion papers on contemporary issues, and award-winning original research and reviews covering a broad range of relevant topical issues—including but not only related to COVID-19.

Although 2021 is nearly but not yet complete, and the relevant bibliometric data is to be collected and analysed for some time yet, we are expecting the leading contributions to follow in the same rich vein.

2021: More About COVID-19

2021 has seen further articles about COVID-19 but rather than initial, well-considered pandemic guidance offered by experts and projections and predictions of likely effects to come, we are now seeing original contributions and commentary about the lived experience from the “fields of battle” in Australia and elsewhere in terms of: the acute disease, its manifestations and complications [33–38]; the adaptations to and opportunities in COVID-19 care [39,40] and in other care settings [41]; the effects of the COVID-19 pandemic on diagnostic cardiac procedural volumes [42,43] and cardiac surgery [44,45]; and, more recently, the reported side-effects of COVID-19 vaccination [46,47].

Among the findings reported or reviewed: the echocardiographic manifestations of COVID-19 are many [34]; troponin elevation was common but clinical sequelae were

uncommon in patients with COVID-19 requiring hospitalisation in Australia [36]; and, atrial fibrillation was determined to be a predictor of mortality in high risk COVID-19 patients [37].

The Remote Device Interrogation Kiosks (ReDInk) allow for remote testing of pacemakers and implantable cardioverter-defibrillators in a rural setting [40], where previously device checks had been performed in face-to-face clinics by visiting cardiologists and technicians. In fact, increased access to telemedicine through novel practice and policy changes is ranked number 7 in the Cleveland Clinic's “Top 10” medical innovations for 2021, with regulators moving quickly to reduce barriers to telehealth, appreciating that these tools can speed access to health care while protecting both health care workers and community members [48].

O'Sullivan *et al.* assessed the early impact caused by the COVID-19 pandemic on cardiac procedure volume in Oceania, finding a significant reduction especially in transoesophageal echocardiography and stress tests [42]. They say longer term evaluation will be important to assess for negative patient outcomes which may relate to deferral of usual models of care in cardiology. More recently, in a study reported in this edition of the Journal, McNamara *et al.* found their local hospital's early response to the COVID-19 pandemic also led to a documented reduction in cardiac surgery service delivery albeit with no change in urgency or type of surgery [44].

Reports of myocarditis after COVID-19 vaccination, especially mRNA vaccination, have come to notice—thankfully, it is found to be mostly mild, and to respond well to treatment, with relatively rapid symptom improvement [46,49]. *Heart, Lung and Circulation* has also published a novel case report from Swiss authors of Takotsubo cardiomyopathy after mRNA COVID-19 vaccination [47].

2021: Not Just COVID-19

In 2021, as in 2020, there have been CSANZ Position Statements [50,51], as well as landmark guidance documents from experts on enhancing the care of familial hypercholesterolaemia in Australia [52], and about food consumption to prevent cardiovascular disease [53]. However, the CSANZ Position Statements have not been about COVID-19 in 2021; rather they have been joint statements endorsed by both CSANZ and the Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) addressing operational and institutional requirements for transcatheter valve therapies in Australia: a completely new statement for transcatheter mitral valve therapies [50], and an updated statement for transcatheter aortic valve therapies [51]. Davies *et al.* comment on the practical application of these standards [54].

While we await data to indicate which original research articles published in 2021 will have the most impact, one that is already showing promise is a report from the Mackay Heart Failure Study [54]. At time of writing, the 2020–2021

paper with the most recent online attention, as measured by alternative metrics (PlumX metrics), was about a study conducted in a typical regional centre in Australia and reported good news—excellent compliance with guideline directed medical therapy and a good prognosis for most patients in terms of both symptoms and survival [55].

2021 has seen not just one but two special issues published: first, the Women's Heart Health edition in January 2021 [56], and more recently, the Vascular Ageing edition [57], both linked to annual CSANZ Scientific meetings. The Women's Heart Health edition has been freely available as the "sample issue" of *Heart, Lung and Circulation* for all of 2020; Geraghty *et al.*'s review on *Cardiovascular disease in women: from pathophysiology to novel and emerging risk factors* has been downloaded more than any other article in the edition [58]. This review points out that cardiovascular disease pathophysiology differs between the sexes, with women more likely to suffer from microvascular coronary disease, endothelial dysfunction, and heart failure with preserved ejection fraction when compared with men—who are more likely to suffer macrovascular disease or heart failure with reduced ejection fraction. Further, that risk factors are often under-recognised and under-treated in women.

The Vascular Ageing edition, linked also to the international Association for Research into Arterial Structure and Physiology (ARTERY) 2021 conference (arterysociety.org), has been published as the November 2021 edition. An overarching concept addressed by this special issue is that one's vascular age may differ from one's calendar age, and there are ways that vascular age could not only be measured but also moderated.

Planning forward into 2022, *Heart, Lung and Circulation* has announced a Call for Papers for a Special Issue on Environment, Climate and Cardiovascular Health, with guest editors, Redfern, Ferguson, Figtree, and Raman (<https://bit.ly/3DleYaX>), and invite contributions that examine the impact of environment and climate, pollution, extreme weather events and more on cardiovascular health, as well as potential solutions to current and future cardiovascular health impacts.

The COVID-19 Era and the Journal

Overall, in the COVID-19 era-to-date, *Heart, Lung and Circulation* has published on a range of responses to, and more recently, the effects of, the COVID-19 global pandemic on health care services and their utilisation. *Heart, Lung and Circulation* is also publishing on much more, including expert guidance and other articles on current topics of importance or interest in cardiovascular medicine worldwide as identified by expert commentators [15,22,41,47]. Special Issues address themes from the general (women's heart health; environment, climate and cardiovascular health) to the specific (genetic heart diseases; vascular ageing). As the COVID-19 era transitions from pandemic to post-pandemic, and perhaps endemic, status, this Journal—with the invaluable

support of our community of readers, authors, researchers, peer reviewers and editors—looks forward to publishing further reports related to the responses and activities, interests and needs of the Australasian, regional and global cardiovascular community—About COVID-19 but Not Just About COVID-19.

Acknowledgements

From "The year in cardiovascular medicine 2020: Journal highlights" session at CSANZ 2021, 6 August 2021. Representing *Heart, Lung and Circulation*—presenters Domenica Zentner (*Fontan: The position statement experience*), Rachel Climie (*Cardiovascular researcher retention in Australia*), Jonathan Skinner (*Genetic Heart Diseases—It's all in the family*), and panellist, Salvatore Pepe. Representing *European Heart Journal*—Filippo Crea, Harry Crijns and Rudolf De Boer.

References

- [1] Zaman S, MacIsaac AI, Jennings GL, Schlaich MP, Inglis SC, Arnold R. Cardiovascular disease and COVID 19: Australia and New Zealand consensus statement. *Med J Aust.* 2020;213:182–7.
- [2] Gregory AT, Pepe S, Denniss AR. COVID-19 and *Heart, Lung and Circulation*: Riding the 2020 waves of change in Australia & New Zealand. *Heart Lung Circ.* 2020;29(12):1737–40.
- [3] Else H. How a torrent of COVID science changed research publishing—in seven charts. *Nature.* 2020;588(7839):553.
- [4] Denniss AR, Chow CK, Kritharides L. Cardiovascular and logistic issues associated with COVID-19 pandemic. *Heart Lung Circ.* 2020;29(5):655–6.
- [5] Dhakal BP, Sweitzer NK, Indik JH, Acharya D, William P. SARS-CoV-2 infection and cardiovascular disease: COVID-19 heart. *Heart Lung Circ.* 2020;29:973–87.
- [6] Arnold RH. COVID-19 – Does this disease kill due to imbalance of the renin angiotensin system (RAS) caused by genetic and gender differences in response to viral ACE attack? *Heart Lung Circ.* 2020;29(7):964–72.
- [7] Kasal DA, De Lorenzo A, Tibiriçá E. COVID-19 and microvascular disease: Pathophysiology of SARS-CoV-2 infection with focus on the renin-angiotensin system. *Heart Lung Circ.* 2020;29(11):1596–602.
- [8] Lo STH, Yong AS, Sinhal A, Shetty S, McCann A, Clark D, et al. Inter-ventional council of CSANZ and COVID-19 Interventional cardiology working group. Consensus guidelines for interventional cardiology services delivery during COVID-19 pandemic in Australia and New Zealand. *Heart Lung Circ.* 2020;29(6):e69–77.
- [9] Lal S, Hayward CS, De Pasquale C, Kaye D, Javorsky G, Bergin P, et al. COVID-19 and acute heart failure: Screening the critically ill—A position statement of the Cardiac Society of Australia and New Zealand (CSANZ). *Heart Lung Circ.* 2020;29(7):e94–8.
- [10] Arnold RH, Tideman PA, Devlin GP, Carroll GE, Elder A, Lowe H, et al. Rural and remote cardiology during the COVID-19 pandemic: Cardiac Society of Australia and New Zealand (CSANZ) Consensus Statement. *Heart Lung Circ.* 2020;29(7):e88–93.
- [11] Nicholls SJ, Nelson M, Astley C, Briffa T, Brown A, Clark R, et al. Optimising secondary prevention and cardiac rehabilitation for atherosclerotic cardiovascular disease during the COVID-19 pandemic: A position statement from the Cardiac Society of Australia and New Zealand (CSANZ). *Heart Lung Circ.* 2020;29(7):e99–104.
- [12] Allahwala UK, Denniss AR, Zaman S, Bhandi R. Cardiovascular disease in the post-COVID-19 era—the impending tsunami? *Heart Lung Circ.* 2020;29(6):809–11.
- [13] Adikari DH, Kushwaha VV, Jepson NS. Collateral damage: The cardiovascular cost of suppressing COVID-19 transmission in Australia. *Heart Lung Circ.* 2020;29(8):1109–11.
- [14] O'Neil A, Nicholls SJ, Redfern J, Brown A, Hare DL. Mental health and psychosocial challenges in the COVID-19 pandemic: Food for thought for cardiovascular health care professionals. *Heart Lung Circ.* 2020;29(7):960–3.

- [15] Mandrola J. Mandrola's top 10 in cardiology for 2020 [Commentary]. www.medscape.com. [accessed 24.9.21].
- [16] Zentner D, Celermajer DS, Gentles T, d'Udekem Y, Ayer J, Blue GM, et al. Management of people with a Fontan circulation: a Cardiac Society of Australia and New Zealand position statement. *Heart Lung Circ.* 2020;29(1):5–39.
- [17] Skinner JR, Atherton JJ, Semsarian C. Genetic cardiovascular conditions—It's all about family. *Heart Lung Circ.* 2020;29(4):495–7.
- [18] Ingles J, Macciocca I, Morales A, Thomson K. Genetic testing in inherited heart diseases. *Heart Lung Circ.* 2020;29(4):505–11.
- [19] Bays HE, Taub PR, Epstein E, Michos ED, Ferraro RA, Bailey AL, et al. Ten things to know about ten cardiovascular risk factors. *Am J Prev Cardiol.* 2021;5:100149.
- [20] Skinner JR, Winbo A, Abrams D, Vohra J, Wilde AA. Channelopathies that lead to sudden cardiac death: clinical and genetic aspects. *Heart Lung Circ.* 2019;28(1):22–30.
- [21] Bart N, Thomas L, Korczyk D, Atherton JJ, Stewart GJ, Fatkin D. Amyloid Cardiomyopathy. *Heart Lung Circ.* 2021;29(4):575–5839.
- [22] Cleveland Clinic unveils top 10 medical innovations for 2020 [News Release, 23 October 2010]. <https://newsroom.clevelandclinic.org/2019/10/23/cleveland-clinic-unveils-top-10-medical-innovations-for-2020/>. [accessed 24.9.21].
- [23] Gregory AT, Denniss AR. Heart, Lung and Circulation Evolves: A fond farewell to our 25th anniversary year and a warm welcome to new initiatives. *Heart Lung Circ.* 2016;25(12):1145–7.
- [24] Harky A, Chaplin G, Chan JSK, Eriksen P, MacCarthy-Ofosu B, Theologou T, et al. The future of open heart surgery in the era of robotic and minimal surgical interventions. *Heart Lung Circ.* 2020;29(1):46–61.
- [25] Thakkar HV, Pope A, Anpalahan M. Masked hypertension: a systematic review. *Heart Lung Circ.* 2020;29(1):102–11.
- [26] Gregory AT, Denniss AR. Making an impact: a new research prize for Heart, Lung and Circulation. *Heart Lung Circ.* 2017;26(12):1233–6.
- [27] Sultani R, Tong DC, Peverelle M, Lee YS, Baradi A, Wilson AM. Elevated triglycerides to high-density lipoprotein cholesterol (TG/HDL-C) ratio predicts long-term mortality in high-risk patients. *Heart Lung Circ.* 2020;29(3):414–21.
- [28] Tran-Duy A, McDermott R, Knight J, Hua X, Barr ELM, Arabena K, et al. Development and use of prediction models for classification of cardiovascular risk of remote Indigenous Australians. *Heart Lung Circ.* 2020;29(3):374–83.
- [29] Chatterton S, Dignan R, Luu Q, Aty W, Chandrasiri S, French JR. Platelet activity measured by VerifyNow® Aspirin Sensitivity Test identifies coronary artery bypass surgery patients at increased risk for post-operative bleeding and transfusion. *Heart Lung Circ.* 2020;29:460–8.
- [30] Royle A, Boggett S, Abraham V, Royle CF. RARAY Operation: Operative description and early results for achieving total arterial coronary revascularisation. *Heart Lung Circ.* 2020;29:1873–9.
- [31] Climie RE, Wu JHY, Calkin AC, Chapman N, Inglis SC, Mirabito Colafella KM, et al. Australian Cardiovascular Alliance. Lack of strategic funding and long-term job security threaten to have profound effects on cardiovascular researcher retention in Australia. *Heart Lung Circ.* 2020;29:1588–95.
- [32] Climie RE, Marques FZ. Impact, strategies and opportunities for early and mid-career cardiovascular researchers during the COVID-19 pandemic. *Circulation.* 2020;141:1838–40.
- [33] Maeda T, Obata R, Rizk D, Kuno T. Cardiac injury and outcomes of patients with COVID-19 in New York City. *Heart Lung Circ.* 2021;30(6):848–53.
- [34] Carrizales-Sepúlveda EF, Vera-Pineda R, Flores-Ramírez R, Hernández-Guajardo DA, Pérez-Contreras E, Lozano-Ibarra MM, et al. Echocardiographic manifestations in COVID-19: a review. *Heart Lung Circ.* 2021;30(8):1117–29.
- [35] Triposkiadis F, Starling RC, Xanthopoulos A, Butler J, Boudoulas H. The counter regulatory axis of the lung renin-angiotensin system in severe COVID-19: pathophysiology and clinical implications. *Heart Lung Circ.* 2021;30(6):786–94.
- [36] Bhatia KS, Sritharan HP, Chia J, Ciofani J, Nour D, Chui K, et al. Cardiac complications in patients hospitalised with COVID-19 in Australia. *Heart Lung Circ.* 2021;30(12):1834–40.
- [37] Ip RJ, Ali A, Baloch ZQ, Al-Abcha A, Jacob C, Arnautovic J, et al. Atrial fibrillation as a predictor of mortality in high risk COVID-19 patients: a multicentre study of 171 patients. *Heart Lung Circ.* 2021;30(8):1151–6.
- [38] Khan H, Barbhayia C. Atrial fibrillation in COVID-19: therapeutic target or grave omen? *Heart Lung Circ.* 2021;30(8):1114–6.
- [39] Premaratne M, Sloan G, Werkmeister M, Bentley L, O'Rourke E. Reducing potential COVID-19 exposure with coronary computed tomography for left atrial appendage assessment: a tool for our time. *Heart Lung Circ.* 2021;30(9):e101–2.
- [40] Wong J, Longhitano A, Yao J, Jayadeva P, Arendshorst K, Grigg L, et al. Remote Device Interrogation Kiosks (ReDInK)—Pharmacy kiosk remote testing of pacemakers and implantable cardioverter-defibrillators for rural Victorians: A novel strategy to tackle COVID-19. *Heart Lung Circ.* 2021;30(7):1044–9.
- [41] Peeler A, Gleason KT, Cho SM, Davidson PM. Extracorporeal membrane oxygenation in acute respiratory distress syndrome: how do we expand capacity in the COVID-19 era? *Heart Lung Circ.* 2021;30(5):623–5.
- [42] O'Sullivan P, Younger J, Van Pelt N, O'Malley S, Lenturur-Katal D, Hirschfeld CB, et al. INCAPS COVID Investigators Group. Impact of COVID-19 on diagnostic cardiac procedural volume in Oceania: The IAEA Non-Invasive Cardiology Protocol Survey on COVID-19 (INCAPS COVID). *Heart Lung Circ.* 2021;30(10):1477–86.
- [43] Khandkar C, Patel S, Arnott C. Procedural volumes in the era of COVID: the risk versus benefit trade-off. *Heart Lung Circ.* 2021;30(10):1430–2.
- [44] McNamara N, Robinson B, Bannon P. The impact of COVID-19 on the provision of adult cardiac surgery at a dedicated COVID hospital in Australia. *Heart Lung Circ.* 2021;30(12):1841–5.
- [45] Wynne R, Smith JA. Cardiac surgery in Australia during the COVID-19 global pandemic. *Heart Lung Circ.* 2021;30(12):1800–4.
- [46] Pepe S, Gregory AT, Denniss AR. Myocarditis, pericarditis and cardiomyopathy after COVID-19 Vaccination. *Heart Lung Circ.* 2021;30(10):1425–9.
- [47] Boscolo Berto M, Spano G, Wagner B, Bernhard B, Häner J, Huber AT, et al. Takotsubo cardiomyopathy after mRNA COVID-19 vaccination. *Heart Lung Circ.* 2021;30(12):e119–20.
- [48] Cleveland Clinic unveils top 10 medical innovations for 2021 [News Release, 6 October 2020]. <https://newsroom.clevelandclinic.org/2020/10/06/cleveland-clinic-unveils-top-10-medical-innovations-for-2021/>. [accessed 24.9.21].
- [49] Yeon SB, Dardas TF, Parikh N. What's new in cardiovascular medicine. <https://update2date.com/contents/whats-new-in-cardiovascular-medicine>. [accessed 24.9.21].
- [50] Muller DWM, Almeida A, Camuglia A, Walters D, Passage J, Scalia GM, et al; Cardiac Society of Australia and New Zealand (CSANZ) and Australia and New Zealand Society of Cardiac and Thoracic Surgery (ANZSCTS). Operator and institutional requirements for transcatheter mitral valve therapies in Australia: a CSANZ and ANZSCTS position statement. *Heart Lung Circ.* 2021;30(12):1805–10.
- [51] Bennetts J, Sinhal A, Walters D, MacIsaac A, Fayers T, Lo S, et al. 2021 CSANZ and ANZSCTS position statement on the operator and institutional requirements for a transcatheter aortic valve implantation (TAVI) program in Australia. *Heart Lung Circ.* 2021;30(12):1811–8.
- [52] Watts GF, Sullivan DR, Hare DL, Kostner KM, Horton AE, Bell DA, et al. FH Australasia Network Consensus Working Group. Integrated guidance for enhancing the care of familial hypercholesterolaemia in Australia. *Heart Lung Circ.* 2021;30(3):324–49.
- [53] Nestel PJ, Beilin LJ, Clifton PM, Watts GF, Mori TA. Practical guidance for food consumption to prevent cardiovascular disease. *Heart Lung Circ.* 2021;30(2):163–79.
- [54] Davies A, Roberts-Thompson R, Puri R, Psaltis P. Position Statements for transcatheter valve therapies in Australia: accreditation standards and Heart Team opportunities. *Heart Lung Circ.* 2021;30(12):1787–9.
- [55] Naing P, Zhang M, Khine AMT, Aung HS, Chean LN, Liaw J, et al. Mackay Heart Failure Study: examining the root causes, compliance with guideline-based therapy and prognosis. *Heart Lung Circ.* 2021;30(9):1302–8.
- [56] Zaman S, Chow C, Lam CSP, Saw J, Nicholls SJ, Figtree GA. Heart disease in women: where are we now and what is the future? *Heart Lung Circ.* 2021;30(1):1–2.
- [57] Climie RE, Gregory AT, Denniss AR, Mynard JP, Pepe S. Vascular ageing: a key frontier in the fight against cardiovascular disease. *Heart Lung Circ.* 2021;30(11):1585–90.
- [58] Geraghty L, Figtree GA, Schutte AE, Patel S, Woodward M, Arnott C. Cardiovascular Disease in Women: From Pathophysiology to Novel and Emerging Risk Factors. *Heart Lung Circ.* 2021;30(1):9–17.