A New Year, the top research articles, and a call to deliver a "net zero" Australian health care system by 2040

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As we all look forward to 2021 after a horror year, the *MJA* will continue to work to cement its status as a highly influential top-tier journal

Welcome to the *MJA* in 2021. Many will be pleased 2020 is finally over and will be looking forward to a better year.[1,2] There are hopeful signs. The public health response to the coronavirus disease 2019 (COVID-19) pandemic across Australia has been exemplary to date,[3,4] and while challenges remain, multiple vaccines have been successful in phase 3 trials and vaccination is anticipated to commence in Australia soon.[5] The United States presidential election is over after a very prolonged dispute, and for many this is a relief. I leave it up to the historians to debate how a US administration could fail so spectacularly in the public health response to a pandemic, but wonder if the necessary lessons will be learned globally before the next major infectious diseases outbreak, the risk of which continues to increase with a warming planet.[6] The dire impact of climate change on health, including mortality, appears to be being taken more seriously in the United Kingdom, Europe and, at last, the US, although Australia disappointingly remains a laggard for now.[6,7]

As medical and health professionals, what can we do to respond to the health emergency that is climate change? Both individually and collectively, we can do more.[6,8] In October 2020, the UK National Health Service (NHS) released an ambitious report entitled *Delivering a "net zero" National Health Service*, a world first.[9] The NHS is committing to net zero carbon emissions over the entire carbon footprint they control by 2040, with an 80% reduction by 2028–2032. They will decarbonise all hospitals, transport and travel, heating and lighting, and medicine and supply chains; promote digital transformation and innovation; and ensure adaptation as part of an integrated strategy.[9] The NHS is inspiring and leading by example and providing businesses, the health system and individuals permission to do more. Here in Australia, in every state and territory, I would argue collectively it is time we do the same, as was highlighted in a recent commentary.[10]

Each year, the *MJA* editorial team selects the top original research articles published by the Journal for consideration of the annual *MJA*, MDA National Prize for Excellence in Medical Research, a $10 000 award; the articles that capture the most votes by the entire editorial team are included. The winner is then decided by independent review by the External Advisory Group, and will be announced later in 2021. The 2019 winner

was an important study of routine cervical screening by primary human papillomavirus testing,[11] and in 2018, the winner was a study of rheumatic heart disease (RHD) in Timor-Leste school students.[12] We recognise every research article published in the *MJA* is worthy; in 2020, the *MJA* published 42 original research articles and 28 research letters, all having passed our stringent internal and external review processes. Because of space constraints, the Journal maintains a high rejection rate of over 90% for original research articles, consistent with the position of the *MJA* as a leading medical journal, ranked in the top 10% of general medical journals globally.[1] We recognise how much work is involved in undertaking, analysing and writing up research and in revising articles based on editor and peer reviewer comments, sometimes more than once; we congratulate all the authors whose articles were published in the *MJA* in 2020.

It is therefore a privilege to announce the top articles published by the *MJA* in 2020 as chosen by the editors.[13-23] The *MJA* published leading research and perspectives on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), including the first SARS-CoV-2 isolated in Australia, uploaded to GenBank for immediate sharing with the global scientific community.[13] On 19 January 2020, a man from Wuhan was admitted in a hospital due to progressive respiratory symptoms 5 days after arrival in Melbourne. Daily reverse transcription polymerase chain reaction testing of nasopharyngeal swabs and sputum was undertaken over a week. Electron micrographs showed the presence of spherical and pleomorphic virus-like particles with prominent spikes, typical of viruses from the family *Coronaviridae*. Phylogenetic analysis revealed that this isolate (BetaCoV/Australia/VIC01/2020) originated in Wuhan.[13]

Telehealth during COVID-19 has been widely embraced. Using a historical controlled cohort design, Bladin and colleagues[14] evaluated the Victorian Stroke Telemedicine (VST) program

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implemented in 16 regional hospitals. During its first 12 months, the VST program demonstrated significant improvements in stroke care including earlier provision of thrombolysis, and the program is now fully funded by the Victorian government.

With the anticipated introduction of vaccination for SARS-CoV-2 into Australia, it is timely to consider strategies that promote vaccination uptake. In a cross-sectional analysis of data from the Australian Immunisation Register, Hull and colleagues[15] assessed catch-up vaccination following the introduction of the "No jab, no pay" policy. They found substantial catch-up vaccination activity among children and young people aged 5 to less than 20 years during the initial 2 years of the policy; 17.6% of incompletely vaccinated young people aged between 10 and 20 years received their second dose of measles–mumps–rubella vaccine, raising coverage from 86.6% to 89.0% for this age group. The authors acknowledged that changes in catch-up vaccination activity may not be solely related to the "No jab, no pay" policy.[15]

Randomised controlled trials that have an impact on practice are of particular importance. Inappropriate prescribing of opioids after trauma or surgery may expose patients to risk of chronic use. A cluster randomised controlled trial examined whether educating junior doctors and pharmacists about analgesic prescribing improved opioid prescribing at discharge for opioid-naïve surgical patients at a single major teaching hospital.[16] Hopkins and colleagues[16] found that patients in surgical units assigned to the intervention were prescribed slow release opioids at discharge less frequently than patients in the control group (adjusted odds ratio, 0.52; 95% CI, 0.35–0.77).

The *MJA* is home to leading Indigenous research in Australia. Based on a prospective, cross-sectional echocardiographic screening study, the prevalence of RHD among young Indigenous people in Maningrida aged 5–20 years was 5.4 definite cases per 100 people,[17] the highest reported for any population. According to Northern Territory RHD register data, only 10% of Indigenous people in Maningrida and the surrounding communities received secondary prophylaxis.[17] In addition to primary prevention, active case finding using echocardiographic screening should be considered in remote Australian communities with a high burden of RHD.

In another study linking data from the Australian and New Zealand Intensive Care Society Adult Patient Database to four population-level datasets, Mitchell and colleagues[18] evaluated the in-hospital, 12-month and 8-year mortality after non-elective admission to four South Australian intensive care units (ICUs), by Indigenous status. They showed that while Indigenous Australians admitted to the ICU were mostly younger with more chronic disease burden, the in-hospital mortality, adjusted for major demographic and clinical factors, was similar to non-Indigenous Australians. However, the adjusted mortality was higher at one and 8 years after discharge, suggesting that community-level care is important in addressing the underlying differences in life expectancy between Indigenous and non-Indigenous Australians. Further, using data linkage between the Western Australia Hospital Morbidity Data Collection and the WA Deaths Registry, Nedkoff and colleagues[19] evaluated the rates of stroke and mortality up to 10 years after an admission with atrial fibrillation; they found that stroke incidence rates and mortality after hospitalisation for atrial fibrillation were much higher for Indigenous than non-Indigenous Australians, in particular for adults younger than 60 years. This was largely explained by the higher prevalence of cardiovascular risk factors and disease, highlighting the importance of addressing these underlying risk factors.

There is growing concern about the inappropriate use of psychotropic medicines for use as a "chemical restraint" in older people in Australia and internationally. A national retrospective cohort study examined dispensing of psychotropic medicine (antipsychotics, benzodiazepines and antidepressants) before and after entry to government-subsidised residential aged care facilities (RACFs) in Australia.[20] Use of these medicines was examined at quarterly intervals for one year before and after entry to RACFs in 322 120 people who held concession cards and were aged 65 years and over. In the first 3 months of being in a RACF, 21% received at least one antipsychotic, 30.5% received at least one benzodiazepine, and 38% received at least one antidepressant; 46%, 39% and 20%, respectively, had not been taking these drugs in the year before entry into a RACF. The overall finding was that use of psychotropic medicines is high before entering residential aged care facilities but increases markedly with entry, especially for people with dementia in relation to antipsychotics.[20] It is reasonable to conclude the prescribing culture and overreliance on psychotropic medicines in RACFs need to be addressed.

Paediatric cancers are increasing in Australia and new evidence about outcomes were highlighted in two important research articles.[21,22] An analysis of data from the Australian Childhood Cancer Registry by Youlden and colleagues[21] found that, having been stable between 1996 and 2005, the overall incidence of childhood cancers rose by 1.2% per year between 2005 and 2015. Further, the authors conservatively estimated that the incidence rate of childhood cancers would increase by 7% over the next 20 years. These data may assist with health service planning to ensure that appropriate resources are available for childhood cancer patients. A second retrospective, population-based analysis of the Australian Childhood Cancer Registry showed that that 388 out of 18 230 people with cancer during childhood developed second primary cancers later in life. The 30-year cumulative incidence of second cancers was estimated to be 4.4% (95% CI, 3.8–5.0%).[22] Children with a history of receiving both chemotherapy and radiotherapy had a high relative risk for second cancers during the first 5 years after diagnosis of a first cancer. This increased risk persisted into adulthood. Acute myeloid leukaemias and thyroid carcinomas were the most common second primary cancers. Late effects of cancer therapy may have contributed to this risk, and therefore, refinement of management and reduction of toxicity must be always considered.

Finally, overdiagnosis of cancer is becoming better recognised. Using national data from the Australian Institute of Health and Welfare, Glasziou and colleagues[23] estimated the total excess lifetime risk for five cancers: breast, prostate, kidney, thyroid cancers and melanoma. Overall, 18% of cancers in women (ie, 11 000 diagnoses each year) and 24% in men (18 000 each year) from 1982 to 2012 were overdiagnoses.[23] The current rates of cancer overdiagnosis still need to be reduced and health services should monitor emerging areas of overdiagnosis.

The *MJA* aims to be an outstanding general medical journal, broadly relevant to all specialties in medicine and health, with a national and global focus, a journal that influences policy and practice. In 2021, we look forward to receiving further excellent articles from Australian and international colleagues. We especially welcome randomised controlled trials and large cohort

studies that will have an impact on practice or policy, or both. We also welcome review articles, especially systematic reviews and meta-analyses that address an important clinical issue, and clinical guidelines and guideline summaries. We will continue to publish evidence-based perspectives covering all aspects of medicine and society, medical education articles, lessons from practice and clinical snapshots, and maintain a vigorous letters to the editor section. If you have ideas or suggestions, we welcome your feedback. Thank you for your support of the *MJA* in 2021.

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