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.

COVID-19's impact on Australia's health research workforce

The COVID-19 pandemic has seen health and medical research promoted as countries establish resilient health systems and rapidly responsive prevention, detection, and treatment methods. However, the pandemic will probably negatively affect the capacity and outcomes of the health and medical research sector itself.[1]

Research Australia is a national alliance of health and medical research stakeholders. In May, 2020, all members on Research Australia's contact list were invited to participate in, and share with colleagues, a 10 min online survey. The questionnaire contained 52 questions about research and employment and perceptions of the effect of the pandemic on researchers' activities (Deakin Human Research Ethics Committee project number HEAG-H-71_2020). Data were analysed with the use of descriptive statistics and logistic regression.

1212 members responded, with most of the responses from researchers in the university sector (79·4%), who are early in their career (41·7%), working full time (70·9%), and in permanent positions (38·1%; appendix). Overall, 79·6% of participants indicated that their research was affected by the pandemic, with a further 9·7% of participants indicating that it was likely to be affected in the future. Commonly identified issues with current research were regarding participant recruitment in trials (49·3%), an inability to do research remotely (51·2%), and interruptions to the provision of equipment, supplies, and materials (28·4%). Most respondents reported effects on higher degree research students and early career researchers in their teams. Overall, 69·4% expected their own research to be affected after 2020, with the most commonly anticipated effects identified as delays in achieving project milestones (88·7%), publications (80·9%), and new funding (63·1%); reductions in overall funding (63·1%); and staff losses (45·8%).

Perceived new developments in response to the pandemic included improvements in collaboration within their own organisation (31·5%), their own organisation pivoting existing research (33·2%), and improvements in ethics committee procedures (30·0%).

Respondents from the university sector were less likely to have received extra funding related to COVID-19 from their institution (odds ratio [OR] 0·32, 95% CI 0·20–0·53) and more likely to have noticed an effect on higher degree research students (OR 2·19, 1·61–2·99). Relative to clinical researchers, public health researchers were less likely (OR 0·76, 0·53–1·09) and basic science researchers more likely (OR 1·75, 1·18–2·60) to expect their research outcomes to be affected after 2020, including any effects on higher degree research students (public health OR 0·51, 0·36–0·73; basic science OR 3·09, 2·04–4·67). Relative to early career researchers, mid-career researchers, but not established researchers, were more likely to expect their research outcomes to be affected after 2020 (OR 1·73, 1·25–2·40).

This first Australian national health and medical research sector survey has highlighted that without an injection of funds from the government, this pandemic will have substantial short-term and long-term repercussions on research outcomes. These include a lower capacity to generate new products for industry, health services, and the community, and ensuring a workforce capable of responding to future pandemics with innovation and agility.

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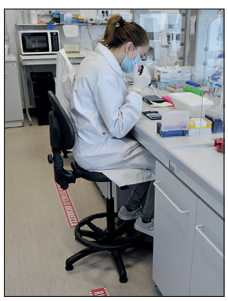

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COVID-19 trial co-enrolment and subsequent enrolment

The COVID-19 pandemic has led to many clinical trials around the world assessing all stages of infection, from prophylaxis to the treatment of severely ill patients who are dependent on a ventilator. In our experience, if the patient's medical condition deteriorates despite the intervention of one clinical trial, the attending physician, patient, or family members might request that the patient be enrolled in a second or third clinical trial.

This request is causing much confusion among clinicians and patients. Industry sponsored trials often prohibit co-enrolment or sequential enrolment and institutional review boards will often not allow this as well.[1] However, there is no regulatory prohibition on co-enrolment in the USA and in many other countries. The enrolment of one patient into more than one study (when a patient fulfils all inclusion criteria and has no exclusion criteria for both studies) has been studied sporadically in trials of mechanical ventilation and resuscitation, and in adult and paediatric critical care.[2,3]

Concerns about co-enrolment centre on safety, consent issues, health-care worker reluctance, and scientific integrity. Yet available literature suggests that co-enrolment does not influence a patient's safety, the trial outcome, or adverse effects provided that the eligibility criteria of every study are correctly applied and that single-study treatments are

See Online for appendix

not subadditive or superadditive.[4] Guidelines can be created for applicable criteria to be satisfied before co-enrolment is approved.[5] The statistical hurdles can be addressed. In most cases, each trial can be analysed separately and validly with the use of standard intention to treat principles; selection and other biases can be avoided if enrolment into the second trial is not dependent upon randomised treatment in the first trial; and valid interaction analyses can be done for each trial by considering the patient's status in the other trial at the time of randomisation in the index trial.[1]

The cornerstones of ethical conduct of research include respect for patients, beneficence, and justice. With COVID-19 infection, access to a second treatment protocol where no other treatment is available should, at times, be strongly considered. In reviewing studies, both the Institutional Review Board and physician researchers should look more in depth at prohibitions on co-enrolment and ask for a justification of any prohibition if it will not affect the goal and the implementation of the study.

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COVID-19 is an opportunity for reform in dentistry

The COVID-19 global pandemic continues to have devastating health, economic, and social effects, and is profoundly affecting the delivery of health services. Because of the infection risks associated with aerosol generated procedures, such as the use of high-speed drills, dental services across much of the world have been essentially closed since late March, 2020. During this period there was limited access to emergency dental care. Consequently, many desperate people with excruciating dental pain and acute oral infections have resorted to do-it-yourself dentistry, including the extraction of molar teeth without any local analgesia[1]—a scene reminiscent of medieval times. Dental services are now slowly and tentatively beginning to re-open, although there is considerable variation in the guidance being issued on the safety procedures required.[2] Rather than resuming normal service, this crisis presents an opportunity to rethink the future of dentistry and address system-level failures.

During the pandemic, many dental personnel have been redeployed to frontline health services to provide a range of clinical procedures beyond their usual scope of practice. The scale and pace of this integration of dental personnel into the wider health system has been remarkable. Dentists, dental hygienists or therapists, and dental nurses, have all had a substantial effect in supporting health service delivery during this crisis and have developed new skills and clinical knowledge in the process. Rather than being isolated and separated from mainstream health care, this crisis has clearly shown that dental personnel can be integrated into the wider system—the challenge ahead is to delineate the clinical roles of dental personnel in a more integrated model of care.

The COVID-19 pandemic has exacerbated socioeconomic and ethnic inequalities[3] and will undoubtedly worsen oral health inequalities. Dental care systems now need to be more responsive to the needs of their local populations and prioritise care for groups with a high need for care, such as low-income, marginalised, and vulnerable groups, including those with multiple morbidities. Current restrictions on aerosol generating procedures provide an opportunity to re-orientate dental care towards a less invasive and more preventive approach, one in which the dental team work in partnership to tackle the shared risks for oral diseases and other non-communicable diseases. This is also a time to stop delivering unnecessary and ineffective treatments. A perfect example of this is the routine provision of tooth scaling and polishing, a procedure that does not have an evidence base and is a costly waste of resources.[4] Radical reform of oral health-care systems will require brave and bold decision making from our political and professional leaders. The time however is ripe for change.

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