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ORIGINAL RESEARCH

Exploring the use and impact of the Australian living guidelines for the clinical care of people with COVID-19: where to from here?

Tanya Millard*, Julian H. Elliott, Sally Green, Steve McGloughlin, Tari Turner, on behalf of the National COVID-19 Clinical Evidence Taskforce

School of Public Health and Preventive Medicine, Monash University, Melbourne, Australia

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Abstract

Objectives: The Australian National COVID-19 Clinical Evidence Taskforce has been developing, maintaining, and disseminating living guidelines and decision support tools (clinical flowcharts) for the care of people with suspected or confirmed COVID-19 since 2020. Living guidelines, a form of living evidence, are a relatively new approach; hence, more work is required to determine how to optimize their use to inform practice, policy, and decision-making and to explore implementation, uptake, and impact implications. An update of an earlier impact evaluation was conducted to understand sustained awareness and use of the guidelines; the factors that facilitate the widespread adoption of the guidelines and to explore the perceived strengths and opportunities for improvement of the guidelines.

Study Design and Setting: A mixed-methods impact evaluation was conducted. Surveys collected both quantitative and qualitative data and were supplemented with qualitative interviews. Participants included Australian healthcare practitioners providing care to individuals with suspected or confirmed COVID-19 and people involved in policy-making. Data were collected on awareness, use, impact, strengths, and opportunities for improvement of the guidelines and flow charts.

Results: A total of 148 participants completed the survey and 21 people were interviewed between January and March 2022. Awareness of the work of the Taskforce was high and more than 75% of participants reported that the guidelines were used within their workplace. Participants described the Taskforce website and guidelines as trustworthy, valuable, and reliable sources of up-to-date evidence-based information. The evaluation highlighted the varied ways the guidelines were being used across a range of settings and the diverse impacts they have from those at a clinical level to impacts at a policy level. Barriers to and enablers of impact and uptake of the guideline were explored.

Conclusion: This evaluation highlights the value of living guidelines during a pandemic when the evidence base is rapidly changing and expanding. It presents useful understanding of the ways clinicians and others use living evidence to inform their clinical practice and decision-making and the diverse impacts the guidelines are having around Australia.

Keywords: COVID-19; Impact evaluation; Living evidence; Living guidelines; Mixed-methods; Australia

1. Introduction

The COVID-19 pandemic has changed the way research is conducted and used to support decision-making in health. Clinicians and decision-makers dealing with great uncertainty have required up-to-date summaries of the latest evidence from research in a significantly accelerated timeline. With the need for timely and trustworthy advice, living guidelines, underpinned by living systematic reviews, have emerged as an approach to meet this need. Living guidelines are a relatively new concept [1–5], producing and maintaining rigorous and up-to-date evidence summaries in an accelerated timeframe to ensure clinicians and decision-makers can draw on all the available evidence to guide policy and practice [6]. Living guidelines require

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* Corresponding author. School of Public Health and Preventive Medicine, Monash University, Level 4, 553 St Kilda Road, Melbourne, Victoria 3004, Australia. Tel.: +61-3-9903-0366; fax: +61-3-9903-0556.

E-mail address: tanya.millard@monash.edu (T. Millard).

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What is new?

Key findings

- Our results show that the Australian National COVID-19 Clinical Evidence guidelines were being used across a range of settings and had diverse impacts at a clinical and policy level.
- The Taskforce website and guidelines were seen as trustworthy, valuable, and reliable sources of up-to-date evidence-based information.
- The lack of a translation/implementation component of the guideline, along with issues around and access to some of the medications recommended by the Taskforce emerged as barriers to their implementation into policy and practice.

What this adds to what was known?

- This paper presents useful information regarding the ways clinicians and others use living evidence to inform their clinical practice and decision-making and the diverse impacts the guidelines are having around Australia.
- It provides useful insight into the benefit of considering a range of policy, jurisdictional, and implementation considerations to develop and support the implementation of comprehensive and nuanced living evidence.

What is the implication and what should change now?

- This evaluation highlights the value of living guidelines during a pandemic when the evidence base is rapidly expanding.
- To maximize the utility and impact of living evidence products, adequate resourcing to facilitate knowledge translation and optimize guideline implementation is paramount.

rapid prioritization of areas where guidance is needed, continued evidence surveillance, and frequent updating of recommendations [5]. The COVID-19 pandemic has highlighted the potential for living guidelines to inform practice and policy, resulting in the development of a number of COVID-19−specific living guidelines [7−9]. As living guidelines are a relatively new approach, more work is required to determine how to optimize the use of living evidence approaches to inform practice, policy, and decision-making. It is also vital to understand the characteristics of the development and dissemination of living guidelines which facilitate or impede living evidence translation, implementation, and impact.

Since 2020, the Australian National COVID-19 Clinical Evidence Taskforce ('The Taskforce') has been developing and maintaining living guidelines and decision support tools (clinical flowcharts) for the care of people with suspected or confirmed COVID-19. The Taskforce is a consortium of 34 peak Australian health professional organizations representing the full range of health professionals providing care to Australians with COVID-19, co-funded by Australian national and state governments and philanthropic organizations. The structure and methods used by the Taskforce to develop living guidelines have been described previously [8]. The guidelines have expanded to include almost 200 recommendations and have been updated more than 100 times. The Taskforce has been increasingly used by a number of key national and jurisdictional organizations to inform decision-making, creating a range of clinical and policy impacts across a broad spectrum of contexts.

Our previous early impact evaluation conducted in 2020 and published in the Journal of Clinical Epidemiology found the Australian living guidelines for the clinical care of people with COVID-19 to be highly relevant, easy to use, trustworthy, and valuable [10]. Most participants in that early evaluation had used the guidelines to support their decision-making and the guidelines were largely considered a reliable, united source of evidence-based advice. Opportunities to improve the guidance were centered on increasing awareness and accessibility. After 2 years, we sought to build on the first evaluation, recognizing the guidelines now include a far greater number of recommendations, and are more well known. We undertook an updated impact evaluation to explore the ways the guideline is being used; the impact of the guidance for clinicians, decision-makers, and policy-makers; the need to sustain living guideline methods; and the importance of integrating living evidence into research informed policy and decision-making. This manuscript presents the findings of the longer-term impact evaluation of the Australian living guidelines for the clinical care of people with COVID-19.

2. Methods

A protocol was developed by T.M. and T.T. to guide the updated impact evaluation and approved by the Taskforce Executive Team and Steering Committee. Ethics approval was provided by Monash University Human Research Ethics Committee (Project ID: 26506). The impact evaluation followed a mixed-methods approach. This approach provided a broad, flexible approach to answering our complex research question(s) [11]. Surveys were used to collect quantitative and qualitative data from healthcare practitioners and semi-structured interviews were conducted with healthcare practitioners and people involved in policy-making. Mixed methods were selected to generate a more complete understanding of the users experiences than that

which could be obtained via qualitative or quantitative data alone [11,12]. The qualitative components (free text responses in the survey and interview data) were used for triangulation and complementarity purposes, to not only bolster and confirm but to expand upon and enhance the quantitative data.

Australian healthcare practitioners potentially providing care to individuals with suspected or confirmed COVID-19 were invited to complete the surveys. Participants were invited to participate via the regular communication methods of the Taskforce and its member organizations, including but not limited to e-mail lists, newsletters, and social media. Participation was voluntary and completion of the online survey was considered implied consent. The survey was carried out using an online survey tool, Qualtrix [13]. Data were collected on awareness of the guidelines, use, strengths, and opportunities for improvement of the guidelines and flow charts. Both quantitative data (Likert scales, yes/no) and free text data were collected. Quantitative data were analyzed using simple descriptive statistics. Qualitative data from the online surveys were combined with data collected through the interviews. Participants in the survey could provide contact details if they wished to participate in an interview.

Interview participants were recruited purposively via e-mail. Members of the Taskforce Steering Committee were asked to nominate potential participants who may have unique perspectives on how the guidelines were being used and the impacts they were having across the spectrum of clinical practice and policy-making. Interview participants were asked to recommend others to interview. We continued to conduct interviews until we captured a range of perspectives which we felt reflected all levels of care from community-based to hospital-based care, in addition to the perspectives of people involved in policy-making. Participation was voluntary and participation in the interview was considered consent. A predetermined interview schedule guided the interview questions with varied questions according to the participants' role (clinical, policy, specialty) and use of the guidelines. The interview explored participants' use of the guidelines, their impacts, strengths, and weaknesses. Interviews were conducted online via Zoom and were audio-recorded, deidentified, and transcribed verbatim. Detailed field notes were also taken. Interviews were conducted by an experienced interviewer (T.M.) who was not previously known to any of the interviewees and who had contributed to the first evaluation but was not involved in the development of the guidelines.

Deidentified data were thematically analyzed using NVivo [14]. Transcripts were read and reread for familiarization, and an initial set of codes developed by open coding and refined during and after the interview process. The codes were verified by T.T. Coded extracts were collated into emerging themes which were reviewed and refined via discussion with the study team. The primary analysis was conducted by T.M. in consultation with T.T. who reviewed and collaborated on the conceptual development and refining of themes.

3. Results

3.1. Quantitative results from awareness, value, and use surveys

The awareness, value, and use surveys were released to Taskforce member organizations on Wednesday, January 19, 2022 and remained open until Monday, February 14, 2022. We received 148 survey responses, including a broad range of respondents by professional role, area of clinical expertise, and state/territory (Table 1). A total of 49 respondents provided an e-mail address for further enquiries.

Prior awareness of the work of the Taskforce was high: 79% (113/143) had read the guidelines and 75% (107/143) had visited the Taskforce website before the survey. Levels of use of the guideline were also very high: 75% (104/139) reported that the guidelines were used within their workplace and 53% (73/137) were aware of the flow charts

Table 1. Survey respondents' characteristics

Characteristic	Number	% of total
Professional role(s) (138 responses)		
Allied health	7	5
Medical	96	70
Nursing	31	22
Other	4	3
Area(s) of clinical practice (157 responses)[a]		
Emergency	26	17
General	38	24
Infectious diseases	8	5
Intensive or critical care	7	5
Pediatrics	3	2
Pregnancy and childbirth	4	3
Respiratory	35	22
Other[b]	36	23
States/territories (136 responses)		
Australian Capital Territory	3	2
New South Wales	38	28
Northern Territory	5	4
Queensland	20	15
South Australia	10	7
Victoria	45	33
Western Australia	11	8
Tasmania	4	3

[a] Multiple selections available, so percentages sum to more than 100%.

[b] Other areas of clinical practice included geriatric medicine, dentistry, pharmacology, addiction medicine, sexual health, education, infection prevention and control, public health, Aboriginal healthcare, disaster health, and occupational medicine.

being used within their workplace. Forty percent (56/139) of respondents were aware of others using the guidelines. The split between frequencies of use of the recommendations vs. the flowcharts was fairly even with 52% (65/125) of respondents reported using the guidelines more frequently vs. 48% (60/125) used the flowcharts more frequently.

Respondents described using the guidelines and flow charts in a wide variety of ways, including informing treatment decisions, informing infection control procedures, developing local treatment guidelines and response strategies, classification of COVID 19 severity—triaging and referral for care, informing infection control procedures, comparing past treatment decisions, comparing recommendations in other guidelines, seeking new reliable evidence on uncertain or novel treatments, and developing and delivering clinical education. Further information on the ways the guidelines were used is presented in the qualitative findings.

Most participants used the Taskforce guidelines to guide their clinical practice when treating patients with COVID-19, referring to them either directly (46%) or indirectly via another source (23%). Less than a fifth of respondents (17%) stated they referred to another source all together and 14% (19/124) were unsure. Of the participants who described referring to the guidelines indirectly via another source, the most common sources included local hospital guidelines, institutional guidelines, Health Pathways, updates from their healthcare network, the Clinical Excellence Commission, the Agency for Clinical Innovation, or state health departments. For those who reported using other sources to guide their clinical practice for COVID patients, sources included state health departments, local health service updates, local hospital recommendations, updates from affiliated colleagues (Royal Australian College of General Practitioners Australian and New Zealand Intensive Care Society), site/program health service guidelines, NSW Therapeutic Advisory Group, and peer-reviewed and preprint studies. Many of these sources use the Taskforce recommendations to inform their guidance. This along with the 14% who were unsure what source they use to guide their clinical care of COVID-19 patients highlights the need for further promotion of the Taskforce guidelines which is discussed later in the qualitative results section. Participants reported awareness of the guidelines being used across a variety of services/organizations including local, jurisdictional, and national services and organizations. Overall, more than 80% of respondents reported that the guidelines were very (49%) or extremely (33%) valuable.

3.2. Qualitative findings from interviews and surveys

The qualitative data obtained via the surveys and the interview data have been combined due to consistencies across themes. A total of 21 people were interviewed and 114 contributed qualitative responses through the survey. The interviews commenced early February 2022 and were completed by the end of March 2022. This was a period of high COVID caseload arising from Australia's Omicron Ba.2 wave. Interview participants included medical specialists (General Practitioners [GPs], Infectious Disease physicians, Intensive Care physicians, pharmacologists, clinical nurse educators) who were involved in the care or guidance of care for people with COVID-19; current and former senior jurisdictional and Commonwealth policy-makers and others involved in the development of local or service-level clinical policies and pathways; and those outside of the Taskforce who were developing guidelines for the care of people with COVID-19.

Key Themes

- The sustained need for and value of the guidelines.
- The complex and varied use of the guidelines.
- Impacts of the guidelines.
- Implementation issues.
- Unique COVID-19 challenges.
- Optimizing implementation, communication, and dissemination.
- The future of living guidelines.

3.2.1. The sustained need for and value of the guidelines

Collectively, participants expressed the need for and overall value of the guidelines. Consistent with the previous impact evaluation [10], participants described the Taskforce website and guidelines as trustworthy, valuable, reliable sources of up-to-date evidence-based information. They all expressed that the guidelines should continue to be updated moving forward. Several factors contributed to the perceived high value and continued need for the guidelines including (a) the ongoing volume of COVID-19–related research, (b) the guidelines providing a ''one-stop shop'' for evidenced-based information about COVID-19, (c) the methods involved in the development of the guidelines as key to their trustworthiness, and (d) the guidelines serving as a 'grounding point', standardizing the management and treatment of COVID-19 around Australia.

Consistent with our earlier impact evaluation, participants reflected on their difficulties keeping up with the constant stream of COVID-19–related publications ''through traditional means''. With a rapidly emerging and changing evidence base, participants emphasized the value of the Taskforce continuing to collate and rigorously analyze the evidence to effectively guide clinical practice. Many explained that the guidelines continue to provide a consistent, highly valuable ''one-stop shop'' for evidence-based information around new and effective COVID-19 treatment and management strategies. Having a single, trusted source for evidence-based information was reassuring to participants.

> ''Across the nation every director of pharmacy, medical practitioners, ID clinicians, etc, there's one source of truth and they don't have to worry about that so much. Most people just want guideline and go, ''yeah, can I use it, how do I use it?'' So it is really, really valuable for that. Otherwise we would've all been replicating it, so it's been incredibly valuable in allowing us to focus on other things.''

The evidence-based methods used by the Taskforce including the rigorous and reliable living processes, the wide consultation methods, the involvement of key clinical experts, and the number and influence of the endorsing organizations contributed to the value and credibility of the guidelines for participants. Participants expressed a high level of trust in the living guideline development methods and were confident that all of the relevant information was being captured and disseminated without bias or influence. Together, these key factors facilitated clinician confidence and are the reason why the guidelines are held by many as the 'gold standard'.

> ''That's why guidelines are so valuable to us, because we know they've not only just been published in peer-reviewed and respected journals, they've also then had key clinical experts review that content and look at the context of all that information, to develop essentially, the best possible guidance for the everyday clinician that doesn't have the same time to look at all of that.''

> ''There's an authority that comes from, you know it seems like a pretty unwieldy beast, the 250 clinicians, governing clinical groups, and all that kind of stuff that lead to the guidelines. But that sort of gives a feeling of safety to the clinician in following that advice, which is needed, you know, in these quickly changing times.''

The pressing need to collate the rapidly emerging research evidence and the trust in the rigorous methods used by the Taskforce meant that for many, the guidelines were seen as a 'grounding point' from which clinicians could base their clinical practice and local guidance/decision-making.

> ''One thing that's become abundantly clear is the amount of publications around COVID just pouring out and often making it into the mainstream before going through the peer review process... The Taskforce has been a nice almost anchoring point, grounding point to bring and synthesize the key pieces of that information together.''

Many participants expressed relief that the Taskforce guidelines had standardized the way COVID-19 is managed across Australia. They felt the guidelines provided much needed consistency across organizations and improved clinicians' certainty that the treatments they were providing to whom, when and how were supported by the most recent evidence-based literature. Several participants referred to the Taskforce as a highly reputable 'authority' for COVID-19 information, a position they felt was held both nationally and internationally.

> ''State and local government, health authorities, and hospital and health districts all across Australia are using the Taskforce guidance to drive therapeutic guidance. So rather than setting their own, they're using the criteria that the Taskforce developed.''

> ''It has helped us to standardize our practice. My whole focus since beginning of COVID has been the more we standardize things and keep things routine, the safer the nurses at the bedside are. I have particularly appreciated the flow charts because it's sort of helped us to have a point of focus. Because it's all evidence based as well, it gives us something to base our own guidelines on, you know, the ultimate source of information.''

> ''I think it's really good to have standardized treatment guidelines, so you can set policy and in particular with these very precious products in an epidemic situation that provides doctors in the community with certainty.''

> ''Internationally, it's kind of looked at as the blueprint for doing it [living guidelines] by others. They are very well thought of and respected and have influenced others like us.''

3.2.2. The complex and varied ways the guidelines are being used

The interviews and surveys highlighted the varied ways the guidelines are being used across a range of settings. Consistent with our previous impact evaluation [10], participants described using the guidelines as a reference point to inform their own clinical practice, or as a basis from which to develop further guidance. Several participants talked about using the guidelines as a starting point from which they operationalized/contextualized the recommendations for local clinical pathways or policy. They described their use of the guidance to inform hospital policy management of COVID, to develop and translate guidance for health professionals and others involved in the treatment of COVID patients, and to develop and deliver clinical education. Participants also discussed the use of the guidelines to inform national health policy and guide planning for drug procurement. The use of the Taskforce guidelines to inform

the development methods and content of other national and international groups developing clinical guidelines was also highlighted.

> ''So we've created a number of drug guidelines, patient consent forms, and information leaflets for patients on a number of the different therapies. And we refer to the evidence Taskforce to help inform the content of those documents.''

> ''We really kind of use that [Taskforce communique update] as our sort of signal that this is something that we need to address. And then we look at how it fits with our existing approach, what needs to change, do things need to be reprioritized?''

With media promotion of research that has not been peer-reviewed often convoluting the narrative around effective treatments for COVID, several participants described using the guidance as a reference point or 'authority' when debunking or refuting claims about COVID-19 therapies. Having one consolidated place to which clinicians could refer when being queried about treatments with little efficacy was seen as both valuable and reassuring.

> ''There have been some drugs such as Ivermectin where there's been lobbying and particular political interests and, and then questions around the studies that have been conducted and the quality of them and, and the rigor of them. Um, and because you've got a responsive kind of living dynamic model set up, you are also able to respond when a study might be withdrawn or be proven to be, you know, not as robust as it made out to be, or, or whatever. So it's not only responding to new evidence. It's also adjusting if the space changes for different reasons.''

Participants spoke about using the guidelines to streamline the triage and treatment of patients with COVID-19. They felt that the structure provided by the guidelines and flowcharts made the care pathways very clear and protocol-driven. Participants described feeling reassured that a consistent, evidence-based approach was being adopted across the hospital system where various clinicians are involved in patient triage and management.

> ''And so for them to be able to have a set of guidelines that are clear and easy to follow with the colour coding and the risk code. They're very protocol-driven and very clear. So it means that when you've got a centralized service, …You just knew that the service you were providing or the advice you were providing them and the streaming into care was consistent and based on evidence.''

3.2.3. Impacts of the guidelines

Various impacts of the guidelines were described by participants across the surveys and interviews. Many highlighted the value of the guidelines in facilitating/promoting clinician confidence. Knowing that they were able to readily access the most current, evidence-based information to guide their treatment of patients with COVID-19 was highly reassuring. Several emphasized the overall time and cost-saving impact of the guidelines and the reduced replication/duplication of this work. Comparisons were made between the time it takes for 'typical' guidelines to be developed vs. the speed at which the Taskforce were able to release and update guidance. Participants expressed how crucial this was during the pandemic and how needed this 'living' model is moving forward with other conditions.

> ''I think the overall impact for me is time saved. It's been, it's just saved me so much time having to independently review all the data that's out there. You know, I try and keep up to date with the big papers but this captures everything and I've got confidence in the site. So it just means I don't have to look anywhere else, it saves me hours and hours and hours of work.''

> ''What [the Taskforce] is showing us is how essential this is, how much we need it you know. In the past we've relied on the NHMRC to do guidelines, the Royal Colleges to do guidelines, the Safety and Quality Commission to do guidelines. They take months, if not years. During a national emergency, we don't have months or years, we need answers yesterday. And I think the Taskforce is delivering on that. It's been extraordinary in how it's been able to act so quickly to produce at least some guidance.''

Several participants reflected on the impact of the Taskforce in working with and representing a large number of colleges and organizations and feeding the guidance into government to inform national policy. They discussed the importance of evidence-informed government decision-making particularly around the procurement of COVID-19 treatments and personal protective equipment.

> ''You want all the colleges and societies feeling they have ownership in supporting the work and disseminating the findings, but you also want to be embedded in government decision-making and informing policy development and program rollout. And there hasn't been enough of that in Australia in the past. I think the pandemic has shown us how important it is to have evidence-informed policy and that's what the Taskforce provides when it comes to treatments.''

> ''It's been incredibly helpful being able to see the guidance in draft form as we've been developing draft policy so that we're not going down the wrong rabbit hole. You know, although, although the Taskforce was considering recommendations on these new treatments, we were considering, how do we get the treatments out to the people, with limited supply, how do we get it out to priority populations? Now, if the Taskforce was gonna come out and say, we don't recommend its use in this population or this population, and we've already devised a scheme to get it out to those populations we're in trouble. So, if the Taskforce guidance is going to have a direct impact on healthcare policy and programs, we need that very rapid open communication. We need rapid turnaround. We need rapid responsiveness to the questions which are coming forward.''

Ultimately, participants felt that the biggest impact of the guidelines was, and continues to be, lives saved.

> ''I think the guidelines are saving lives every day. So that's the impact that you want to have. These guidelines are assisting clinicians to make wherever possible, and it's not always possible, evidence-based decisions which are supporting the clinical care of people, some of whom are becoming gravely unwell from this horrible disease. And lives are being saved… I think the Taskforce has shown why we need this sort of structure in Australia.''

3.2.4. Implementation issues

Throughout the interviews, participants highlighted several factors which they believe limit the implementation of the guidelines. They raised concerns around a lack of awareness of the guidelines; the perceived 'clunkiness' of MagicApp (the platform on which the guidelines are published), the inability for the guidelines to be integrated into practice software, and issue with supply and access to several of the recommended treatment and therapies.

Although participants were aware of the many organizations supporting the Taskforce and various distribution activities undertaken to promote the guidelines, many had still encountered colleagues and organizations who were unfamiliar with the guidelines. They spoke of a high level of awareness among colleagues or services who were involved in clinical research or personally contributing to the guidelines (including panel members, etc) however highlighted that awareness of the Taskforce and guidelines outside of these cohorts could be improved. In considering where the disconnect could be occurring, participants suggested that many clinicians received their information from informal pathways, and that the Taskforce may not be reaching all the influential people or conduits in these routes.

> ''The reason they set up the Taskforce is to make it instant and responsive, but even so clinicians don't go to the website looking for guidance. They look at the advice that's coming through in news articles from their colleges. They look at the advice that's being shared in grand rounds. They look at the advice that their registrar shares during a ward round. They look at what their peers are saying.''

Several participants spoke about the deluge of e-mails and newsletters through formal communication channels, such as colleges, they receive and expressed that information delivered via these methods often becomes 'just more noise' in what is already a very heavy workload. The huge burden on clinician time resulting from the pandemic was also highlighted as a factor that may have limited widespread awareness and implementation of the guideline. Participants also described a perception among some GP's and other health professionals that more emphasis had been placed on the guidance for patients with moderate to severe COVID, resulting in a lack of awareness about the recommendations for community care and mild COVID. This may be partially explained by the timing of the interviews being just after the recommendations for the first treatments for mild COVID were released.

> ''I have to say I've stopped reading e-mails properly. There's just too many of them now.''

> ''I think the problem is during a pandemic, as I mentioned for the clinicians that weren't changing it wasn't for lack of engagement. It's just, they were the ones who were totally smashed, you know, and dealing with the huge volume of patients.''

Several participants discussed the overall size of the guidelines as a barrier to their implementation. They described experiencing difficulties locating and deciphering specific information quickly and needing to 'translate' the guideline information into languages other than English and materials suitable for patients/consumers. The 'clunkiness' of MagicApp was also considered a barrier to the implementation/adoption of the guidelines.

> ''MagicApp is often very difficult to navigate. It's quite hard to find specific pieces of information or to have a helicopter view of what the guidance is.''

> ''I end up having to decipher things for a lot of people, but I do find there's a balance between getting all the information out there and getting information that's easily digestible.''

One of the GP's described the break in workflow required to access the guidelines during patient consultations as a potential reason for the lack of awareness/implementation of the recommendations among GP's.

> ''Our practice software (GP) doesn't interact with guidelines directly. So we have to break workflow to go into a guideline or to look up a guideline and they're just often really long.''

The release of several of the Taskforce recommendations had immediate impacts on drug availability and issues accessing recommended treatments were identified as a significant barrier to guideline implementation. Participants provided the examples of the recommendations for tocilizumab and budesonide, both of which are usually prescribed for conditions other than COVID-19. These recommendations resulted in an immediate and drastic increase in demand for the therapies which exceeded the supply.

Participants also provided examples of therapies that were recommended but not currently available in Australia and emphasized that careful consideration of access, cost, timing, and the 'national implications' of recommendations was needed to improve implementation. They acknowledged that the primary objective of the Taskforce was to provide recommendations based entirely on the evidence and questioned if it should be the job of the Taskforce to consider these supply/access issues or if it falls outside of their remit. Regardless, they emphasized that more consideration of these important factors was needed to mitigate supply issues and improve the reach and impact of the guidance.

> ''A lot of what's in it is slightly ahead of what's available in the community. So for instance, when you read the guidelines at the moment about the oral treatments, and then when you go onto Health Pathways or you look at what's available in your current area, there may be a little bit of a mismatch because of supply issues.''

> ''Especially with the new treatments, there've just been lots of issues in terms of how do we actually get access to the treatments.''

3.2.5. COVID unique challenges

In reflecting on the impact and use of the guidelines, participants identified several challenges resulting from the rapidly evolving context of COVID-19 and the widespread uptake and overall success of the Taskforce. Although the Taskforce was initially set up as a traditional living guideline providing advice and recommendations to clinicians based on the research evidence, participants explained that clinicians and others were looking to the Taskforce to perform roles outside of this scope. They wanted the Taskforce to provide clinical guidance, information and consideration of the logistics around drug access and delivery, and local and patient-specific caveats, effectively replacing or augmenting the usual systems/infrastructure that were not designed to work at the same pace as the Taskforce (e.g., regulators, hospital protocols, care pathways).

A significant challenge identified by the participants was the limited availability of trial data reflecting the current COVID-19 situation in Australia. Participants highlighted that many of the Taskforce recommendations were based on trial results collected in unvaccinated populations with a different strain of COVID-19 to the currently dominant strain in Australia, (Delta vs. Omicron) and so questioned the generalizability of some of these data.

> ''A really good example was that a lot of the studies that are now coming out were done in unvaccinated people with Delta or Alpha. And now we've got a highly vaccinated population which has got Omicron. And the trial results, therefore, are not particularly informative about how we would use X drug in Y situation because the trials weren't done to do that.''

Two participants expressed that because the Pharmaceutical Benefits Advisory Committees (PBAC) traditional role is not to move rapidly to update/integrate/add drugs to the schedule, clinicians had been looking to the Taskforce for information they would usually access via the PBAC including safety risks and indications for use. Participants felt this was beyond the current scope of the Taskforce and a vulnerability in the wider system.

> ''I think what's not appreciated is that the guideline group is playing the role of PBAC right now… because the government is directly purchasing the drugs and we don't have the normal guidance that we get through PBAC about the safety risks and indicated uses. There's obviously TGA therapeutic indications, but as a GP, we are guided by the PBS most of the time. So it's this strange thing where what the guidelines people are saying is the substituting the advice that we often get through PBAC.''

3.2.6. Catching up with the success of the guidelines—Optimising implementation, communication, and dissemination.

3.2.6.1. Implementation considerations. Collectively, participants felt the Taskforce had been successful in achieving what it set out to achieve (i.e., developing and maintaining evidence-based recommendations). In considering opportunities for improvement, a common theme expressed through the evaluation was that there is a missing component in the overall system of translating evidence to clinical practice that considers evidence-based treatment options but also considers individual patient factors and national/local contextual considerations. Participants recognized that this is not currently within the remit/scope of the Taskforce but, in light of the overall success of the Taskforce,

many participants suggested that the focus should now shift toward nuancing the guidance to ensure the recommendations consider these factors and fit into 'real-world' scenarios.

> "I think there's a further piece of work to be done in the translation. Now this is just really catching up to the success of the guideline. I think with the success of the guideline and them being evidence-based it does require a piece of work on their translation and adoption."

> "How do you actually adopt the recommendations into practice and how do you make that transition into practice? ... There's an evidence-based guideline component and then there's a translation component…. It needs the translation component because otherwise the adoption into practice can be problematic."

One participant expressed the need for prioritizing equity and ensuring consideration of access and availability to Aboriginal and Torres Strait Islander Peoples and those who are culturally and ethnically linguistically diverse. This participant called for work to facilitate the tailoring of the guidance to these specific populations where the recommendations require consideration of different local factors.

> "The evidence shows that COVID isn't impacting Australians the same and that these interventions that they're recommending, you know, there are priority groups and these priority groups are this, this and this, and from a evidence approach with a concern for equity that we should be focusing these interventions on these people, you know, whereas, socioeconomic status, ethnicity, indigenous status are invisible in recommendations most of the time."

When discussing ways to address the issues surrounding drug access, participants identified a number of complexities impacting the supply of many of the recommended therapies including issues with global suppliers, stockpiling, and a lack of transparency around quantities available at any given time. Participants suggested that the scope of the guidelines could be expanded to incorporate recommendation-specific information regarding national and jurisdictional treatment accessibility, cost, population-specific caveats regarding supply and dose, and any other access issues that could limit implementation.

> "There needs to be a component of the national guidelines that includes consideration of access and availability. And what that requires is a little bit of liaison or more improved liaison between the recommendations from the guidelines groups and the availability and access. So that requires a closer understanding and engagement between the right people."

> "What has been useful as we've developed our relationship with the Taskforce is being able to know what's coming up to be considered because of these rapid shifts. If it's an existing medicine that has been repurposed for COVID, we need to sort of be on top of that before the recommendation is made, to make sure that we constrain supply. So it doesn't all get panic bought."

3.2.6.2. Communication and dissemination considerations. Although the guidelines were considered by many as the authority for COVID-related information, participants across the surveys and interviews reiterated the need for further work to increase awareness and optimize their distribution, translation, and implementation to clinical practice. Participants called for more widespread use of the recommendations through clinical services nationally and reiterated that this relies on direct and ongoing channels of communication regarding the recommendations and updates. Consideration of the various groups of clinicians who will be implementing each recommendation and then targeting them specifically was proposed.

Strategizing, consultation, and partnership were seen as key to facilitating widespread awareness, dissemination, and implementation of the guidelines. Participants encouraged increased engagement with the government, key stakeholders, and clinicians in each state and territory and clearer systems to ensure the right information was being fed to the right person within each organization. Strengthening engagement with jurisdictions and clinical and organizational partners including Primary Health Networks, local health and hospital networks, and relevant clinical collaboratives to support translation was recommended. Preparing different versions of the guidelines for the public, various clinical groups, policymakers, and others, and tailoring dissemination activities to each of these groups was proposed as a way to increase guideline translation and implementation.

> "People have signed up to support the Taskforce, but I don't think they realize how important the work is and how they need to be getting that out to their members. So I think the Taskforce needs to be working with all potential avenues of disseminating their guidelines out to clinicians. Because there's no point having guidelines sitting on a shelf or on a website they need to be inside the head of people who are making active clinical decisions."

3.2.7. The future of living guidelines

A common sentiment expressed by the participants was that not only has the Taskforce been successful in

informing our response to the treatment of COVID-19 during the pandemic but also that the learnings facilitated by the Taskforce during this time have great implications for the future of guideline development, living evidence, and evidence-informed policy. They described their desire to see the Australian living guidelines for the clinical care of people with COVID-19 continue and for living guidelines be adopted across other clinical areas.

> ''I really hope this Taskforce is not something that is seen as a quick fix during COVID and then goes away. I think it needs to be seen as an example of how we can target a health area or a clinical area within a timeframe and then switch to the next focus, but still in the background be able to continue to feed in.''

> ''There are a whole lot of other infections out there, and it'd be great to see this for influenza or other diseases of public health importance where there's a lot of evolution in the in the evidence quickly.''

4. Discussion

At the time of this evaluation, Australia was experiencing its second wave of COVID-19 and OMICRON was the prominent strain. Nationally, COVID-19 hospitalizations were at the highest rate seen to that time. We sought to explore the ways the guideline was being used; the impact of the guidance for clinicians, guideline developers, and decision-makers; the need to sustain living guideline methods; and the importance of integrating living evidence into research-informed policy and decision-making. Our results show that the guidelines were being used across a range of settings and had diverse impacts at a clinical and policy level. Participants described a high level of trust in the living methods used to develop the guidelines and the broad consultation and membership of the Taskforce was seen as a significant strength. The reduced duplication, consistency, and time-saving benefits were highly valued. Participants felt that the Taskforce had effectively standardized the guidance and care of people with COVID-19 in Australia, increasing clinician and decision-maker trust and confidence. The lack of a translation/implementation component of the guideline, along with issues around and access to some of the medications recommended by the Taskforce emerged as barriers to their implementation into policy and practice. With new variants and new treatments continuing to emerge, participants emphasized the need for the National COVID-19 Clinical Evidence Taskforce to continue to update the guidelines for the foreseeable future. Furthermore, they were hopeful that the success and learning of the Taskforce could be applied to clinical areas of importance to the sector.

The COVID-19 pandemic has prompted an unprecedented amount of research activity and rapid development of the evidence base. Decision-makers have increased their demand for evidence-based information to inform responses and advice [15]. Participants in this evaluation described their use of evidence (via the Taskforce) to inform decision-making at local, jurisdictional, and national levels. They also described using this evidence to counter the 'fake news' and misinformation which has been a prominent feature during this pandemic.

The recent Global Commission on Evidence to Address Societal Challenges (2022) emphasized the need for further work to bridge the gap between health decision-making and research evidence [15]. It encouraged a focus on formalizing and strengthening domestic evidence-support systems alongside research systems, ensuring research evidence and recommendations are grounded in an understanding of national (or state) context [15]. The Taskforce provides an effective example of this strengthening; however, more work needs to be done, building on the success of the Taskforce, to facilitate the translation and implementation of the COVID-19 guidelines and to extend these approaches beyond COVID-19 to other areas of health practice and policy.

Considering and facilitating the ''real world'' application of evidence-based recommendations is crucial to their successful implementation into policy and practice. Guideline developers need to consider not only the evidence on specified health outcomes but also a range of political, logistical, ethical, legal, social, and boarder implementation factors [16]. To maximize the utility and impact of the guidelines, adequate resourcing to facilitate knowledge translation and optimize guideline implementation is paramount. Further communication, collaboration, and strategizing with member organizations, State and National Government and key stakeholders and clinicians in each state and territory could assist the Taskforce to account for the 'on-the-ground' realities, although considering the specific enablers or constraints from vested groups. It is important to consider if guideline developers are best placed to undertake this work or whether it should happen in a different forum.

This study has some limitations. Considering that the survey was so widely distributed, a higher number of responses was anticipated. However, the range and distribution of responses was broadly representative of the population who was using the guidance and reflected the distribution of the COVID-19 pandemic across Australia at the time of the evaluation. The snowballing method of recruitment, starting with Taskforce members could have biased recruitment to those who were more likely aware of or connected to the Taskforce, or more engaged with guidelines in general. Only a small number of participants involved in policy-making were available to be interviewed. Including a larger number of policy-makers or conducting a separate evaluation specific to policy-makers

would be very useful for future evaluations to explore exactly how they are using living evidence to inform decision-making. Finally, several of the authors of this manuscript had roles in the Taskforce, potentially introducing some bias in the analysis and reporting. However, this work was led by a researcher with no other roles in the Taskforce, and the contribution of Taskforce team members had the benefit of increasing the understanding of the context and represents the purpose of the evaluation, to understand and improve the impact of the guidelines.

Although globally there is rising interest in living guidelines, limited research has explored the implications of a living approach for implementation, uptake, and impact [17]. Further work is needed to address these details as more living guidelines are developed. This evaluation highlights the value of living guidelines during a pandemic when the evidence base is rapidly expanding. It presents useful learnings on the ways clinicians and others are using living evidence to inform their clinical practice and decision-making and the diverse impacts the guidelines are having around Australia. Furthermore, it provides useful insight into the benefit of considering a range of policy and jurisdictional and implementation considerations to develop and support the implementation of comprehensive and nuanced living evidence.

Plain language summary

Surveys and interviews were used to explore health professionals awareness and use of the Australian National COVID-19 Clinical Practice Guidelines and to identify the impact of the guidance, its strengths, and opportunities for improvement. The study found that awareness and use of the guidelines was very high and the guidelines overall, were seen as trustworthy, valuable, and reliable.

Research data for this article

Due to the sensitive nature of the questions asked in this study, survey respondents and interview participants were assured raw data would remain confidential and would not be shared.

CRediT authorship contribution statement

T.M. and T.T. developed the methods, which all of the authors revised on behalf of the National COVID-19 Clinical Evidence Taskforce. T.M. collected the data, which T.M. and T.T. analyzed. T.M. prepared the first draft of the manuscript and incorporated the feedback to produce the submitted version of the manuscript, which all of the authors approved. Tanya Nicole Millard contributed to writing−review and editing, writing−original draft, project administration, methodology, investigation, formal analysis, data curation, and conceptualization. Steve McGloughlin contributed to writing−review and editing and conceptualization. Tari Turner contributed to writing−review and editing, validation, methodology, funding acquisition, formal analysis, and conceptualization. Julian H Elliott contributed to writing−review and editing and funding acquisition. Sally Green contributed to writing−review and editing, funding acquisition, and conceptualization.

Data availability

The data that have been used are confidential.

Declaration of competing interest

The authors declare that they have no relevant conflicts of interest.

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Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jclinepi.2023.111234.

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