COVID-19: A systems perspective on opportunities for better health outcomes

Michelle J. Morgan

Abstract
COVID-19 has disrupted social and spatial life. In this work, I argue that such disruption provides an opportunity for all tiers of government to reassess collective priorities and reorient societal goals towards better health outcomes for all. I offer a systems thinking perspective to show how societal goals such as economic growth are supported by “system rules” created by governments—the same rules largely responsible for prevailing inequities and preventable chronic, noncommunicable diseases and conditions. The work is significant because it shows how the disruption caused by COVID-19 changed deep system leverage points, highlighting places inside governmental systems susceptible and acceptable to change and revealing how systems can be reoriented. It draws on empirical data from one subnational jurisdiction of Australia. Specifically, in late 2020, 81 Tasmanian local government personnel shared views on diverse governmental changes made in response to the pandemic. Most participants wanted those changes to continue because of their net benefits to health and social, economic, and environmental outcomes more broadly. They expressed overwhelming support for actions to improve the social determinants of health and communicable and noncommunicable disease prevention and management. I conclude that unless such efforts for change continue, poor health outcomes and health inequities are likely to be exacerbated and argue that a shared systems goal to create a wellbeing economy could reorient systems to achieve better health outcomes for all.

KEYWORDS
chronic noncommunicable diseases and conditions, COVID-19, local government, social determinants of health, systems thinking, wellbeing economy

1 | INTRODUCTION
In April 2020, Kerwin Datu wrote an editorial in this journal that described elements of the early response to the COVID-19 pandemic from the three tiers of government in Australia. He predicted that governments’ focus would shift in the medium- and longer-term because of the crisis. He referred to a remarkable “lack of vociferous...
Key insights

From a systems thinking perspective, radical and swift actions in response to COVID-19 show that governments and communities respond to critical health issues—which begs the question, why is more not done for chronic conditions? Survey data from an Australian local government sector point to overwhelming support to continue such focused action in relation to health and the social determinants of health beyond the pandemic. COVID-19 provides a rare opportunity to make transformational changes to work towards better health outcomes for all. Unless such efforts for change are taken, poor health outcomes and health inequities are likely to be exacerbated in the longer term.

The social determinants of health have profound effects on population health outcomes, such as those related to NCDs, which globally account for 41 million deaths each year (WHO, 2021b). Common types of NCDs include heart disease, stroke, and diabetes, of which 80% are likely preventable (WHO, 2005). Their social determinants, and the inequities they reflect, are mostly shaped by policy decisions, which are rules created within the systems by governments to achieve a system goal, from local to global scales (Bambara et al., 2019; Marmot & Bell, 2019). With western societies geared to economic system goals, insufficient attention has been given to addressing the social determinants of health, which has resulted in unacceptable rates of poor population health and health inequities (Collins et al., 2015; Crooks et al., 2018; Friel, Townsend, et al., 2021). However, the COVID-19 pandemic has disrupted the economic mindset and societal functions in unprecedented ways, forcing governments globally to use means that have seemed unfathomable to control the spread of the disease and mitigate associated impacts (Joyce et al., 2020). Such disruption provides a rare opportunity to reassess collective priorities and change entrenched system behaviours to address other crises such as NCDs and planetary health (Jones et al., 2021).
Grove et al. (2021) would describe the prevalence of NCDs as a slow emergency: NCDs develop over relatively long periods of time, and their impacts on the health system are gradual but significant. Unlike NCDs, COVID-19 spreads quickly and easily from person to person and has the potential to overwhelm health systems when not effectively contained. Some infected with COVID-19 require hospitalisation and a smaller proportion will require intensive care (Liu et al., 2021). Older people and people with existing conditions such as NCDs are at greater risk of serious health complications because of the disease (Liu et al., 2021). Of particular concern are virus mutations, evident with Alpha, Delta, and Omicron variants. These mutations can result in changes to the transmissibility and severity of the virus, and potential resistance to existing vaccines (Torjesen, 2021). Therefore, governmental responses to contain the virus require constant adaptation.

Building on these foundations and drawing on empirical data from the local government sector in the Australian state of Tasmania, I offer a systems thinking perspective on the significance of the governmental changes noted by Datu (2020) and consider how these changes relate to broader population health outcomes. I outline government actions in response to COVID-19 and provide an overview of systems thinking and leverage points. The design, method, and findings from the Tasmanian study are presented and are followed by a discussion that provides suggestions for how governments can leverage the opportunity created by the pandemic and strive for better health outcomes for all beyond the pandemic.

2 | GOVERNMENT RESPONSES TO COVID-19

The ways in which governments have responded to COVID-19 and its impacts vary considerably across countries, subnational regions, and municipalities (OECD, 2020), and those differentials warrant critique of geopolitical and economic systems and frameworks beyond the remit of this commentary. As with all pandemics, managing the multiple scales of the pandemic is crucial because “area-specific socio-cultural, demographic, economic and geographic factors” influence the pattern and transmission of the disease (McCoy, 2020). The same spatial considerations are necessary for NCD prevention.

Within their varied capabilities to do so, governments have been a driving force responding to the spread of COVID-19 and mitigating its impacts across health, economic, social, and fiscal dimensions (OECD, 2020). Western democracies have typically been in strong positions to be at the leading edge of this response (OECD, 2020). In Australia, as in other countries, reported COVID-19 cases and mortality rates show regional concentrations and variations (Australian Government Department of Health, 2022). When Australia reopened its borders in February 2022, the state of Victoria had the highest proportion of COVID-19 with 12,571 cases per 100,000 of the population, compared with the state of Tasmania, which had one of the lowest proportions of cases with 2,752 per 100,000 of the population (Statista, 2022). In the initial waves of the pandemic, most outbreaks in Australia were concentrated in the major cities of Sydney, New South Wales, and Melbourne, Victoria (Australian Government Department of Health, 2022).

Globally, combinations of strategies to prevent the spread of COVID-19 have been implemented from national to local scales and based on case numbers and level of risk posed from the spread of COVID-19 (OECD, 2020). In addition to physical distancing, increased hygiene measures, and vaccinations, movement restrictions have been a major and common prevention strategy (Bissell, 2021; Girum et al., 2021). Defined by political, economic, and geographic boundaries, these restrictions ranged from country borders to specified distances from people’s homes, including those that have been part of “stay at home” and “lock down” orders. To help ensure compliance with movement restrictions in Australia, financial support initiatives were introduced by all tiers of government early in the pandemic. Federally, and most significantly, these initiatives included a variety of temporary income support measures (Datu, 2020), such as JobKeeper, JobSeeker, and the Coronavirus supplement, which were payment schemes for businesses, employees, job seekers, and low-income earners (Phillips et al., 2020).

At the outset of the pandemic, the former Council of Australian Governments was replaced by a National Cabinet, which provided a key mechanism for rapid intergovernmental decision making between federal and state and territory governments (Bromfield & McConnell, 2021). In reference to the national strategy, subnational governments in Australia are responsible for implementing emergency management frameworks for their regions (Elphick, 2020). In response to COVID-19, key responsibilities of subnational governments include (but are not limited to) conducting COVID-19 testing, contact tracing, and monitoring; regulating movement restrictions; providing COVID-19 vaccinations; ensuring sufficient hospital capacity; and providing region-wide communication (Australian Government Department of Health, 2021).
Working closely with state governments, local governments have played a crucial role in the pandemic response. Often described as closest to the people, local governments are uniquely positioned to support emergency arrangements, tailor public information, provide community-level leadership, and implement other strategies at their discretion to meet the needs of people in their municipalities (ALGA, 2020).

3 | SYSTEMS THINKING AND LEVERAGE POINTS

Arguably, systems thinking can enhance understandings of the pandemic and its various parts—from how COVID-19 emerged and spread; to governmental actions taken and reflections on how people responded to them; to consideration of how such actions have affected how societies function at various scales (Bogdewic & Ramaswamy, 2021; Bradley et al., 2020; Sharma et al., 2021).

Systems thinking has evolved from disciplines as varied as anthropology, biology, business management, computer science, and geography (Curtis, 2004; Peters, 2014). Reflecting this diversity, several epistemologies exist within the field. Since the 1980s, systems practitioners have embraced methodological pluralism to contend with complexity (Midgley, 1992). A common thread across disciplines is that systems thinking offers a perspective by which complex problems or situations are emergent outcomes arising from complex adaptive systems (Abson et al., 2017; Pearce, 2018). Consider, for example, the prevalence of COVID-19, adherence to COVID-19 regulations, or vaccination rates.

The aims of a systems thinking perspective are to understand how and why a system functions in context to produce emergent outcomes and then to anticipate how interventions introduced into a system might affect how it functions (Pearce, 2018). Such understanding can inform decision-makers about what parts of a system need to be changed and support choices about how to make changes to shift a system so it generates outcomes more desirable than those which exist.

Complex adaptive systems can be natural or created and exist at varying scales from viruses, to specific population groups within municipalities, or intergovernmental collaborations (Luke & Stamatakis, 2012). Defining boundaries of a system of interest is necessary to determine what is initially in and out of scope, and these boundaries may shift and change as the work progresses. For example, a system of interest might be vaccination rates within a specific municipality. Collective analysis of the vaccination rate system by diverse stakeholders such as scholars, practitioners, and community members might involve exploring relationships between and among system parts and asking how they interact as a dynamic whole. All that requires critical reflexivity from various stakeholders. Parts of the vaccination rate system could include vaccine supply, public awareness, public access, social norms, social beliefs, perceived threat of disease, trust in authorities, and effectiveness of health communication. Interactions among these system parts produce the system’s dynamic behaviour, which changes over time. If behaviour is deemed “undesirable,” such as might occur in relation to low vaccination rates, then a systems perspective can help decision-makers understand the system’s interacting factors and, to increase the vaccination rate, for instance, can also help them see “the multiple implications of [their] decisions and (in)actions” (Bradley et al., 2020, p. 1).

Complex adaptive systems are characterised by self-organisation, adaptation, non-linearity, interconnectedness, and sensitivity to initial conditions (Jebb et al., 2021; Patton, 2015). Not known is how a system will respond to interventions, which is why policy interventions are often called social experiments. To engage with these characteristics, governments need to consider intended and unintended consequences of (in)actions and “adopt flexible approaches that allow for ‘course corrections,’ informed by experience and the emergence of new data” (Jebb et al., 2021, p. 7). Arguably, in response to COVID-19, much of the time many governments have shown such agility. Why others have not is beyond the scope of this work.

Understanding a system’s behaviour by consciously using systems thinking and perspectives can help actors identify leverage points to shift the system and produce sought-for outcomes (Bolton et al., 2022). However, distinct leverage points have different levels of effectiveness. Systems scholar Donella Meadows “identified 12 leverage points, ranging from ‘shallow’—places where interventions are relatively easy to implement yet bring about little change to the overall functioning of the system—to ‘deep’ leverage points that might be more difficult to alter but potentially result in transformational change” (Abson et al., 2017, p. 31) (Figure 1). Shallow leverage points tend to involve interventions that address immediate causes of problems, such as subsidies, taxes, or standards, which are influenced by deeper leverage points, including mindsets out of which the system arises or system goals, such as economic growth. When combined with a systems perspective, understanding leverage points can help decision makers more effectively work towards the systems change they are pursuing.
4 STUDY DESIGN AND METHODS

Tasmania is governed by one state government, and 29 local government councils exist as municipalities under the Local Government Act 1993 (Figure 2). It is Australia’s only island state, with a landmass of 68,401 km² and a population of 558,000 (ABS, 2022). About two-thirds of Tasmanians live in the cities of greater Hobart (comprising Clarence, Glenorchy, Hobart, and Kingborough local government areas), Launceston, and Burnie and the remaining third are in regional and remote areas (ABS, 2021). Compared with other subnational jurisdictions in Australia, Tasmania’s population is older and people have higher rates of NCDs (Tasmanian Department of Health, Public Health Services, 2019), making them particularly vulnerable to COVID-19.

The Tasmanian Department of Health provides healthcare services in each of the state’s three regions and operates the state’s four public hospitals. Its Public Health Services section provides state-wide services to protect and improve Tasmanian’s health and wellbeing, including in relation to communicable and noncommunicable disease prevention, management, and emergency responses. Public Health Services collaborates with other departments, tiers of government, and organisations as defined in the Public Health Act 1997 (Tasmania). The Local Government Act 1993 (Tasmania) is the principal legislation outlining the powers and functions of councils. Each council consists of 7 to 12 elected members, including a mayor and deputy mayor, with general managers appointed to lead council operations and implement council decisions. Each council is responsible for a Local Government Area [LGA], and the 29 vary significantly in their physical and human geographies. For example, the population density of Hobart is greatest at 709.2 per km², compared with Central Highlands, which is lowest at 0.3 per km² (ABS, 2021).

Between 2 March 2020 and 14 December 2021, Tasmania had been relatively successful in controlling COVID-19, aided by its physical separation from mainland Australia. During that time, 238 COVID-19 cases were recorded there and 13 deaths were attributed to COVID-19 (Tasmanian Department of Health, 2022). The Tasmanian Government implemented strict measures to prevent the spread of COVID-19, including lockdowns in the north west and state-wide and tight border restrictions for non-essential travel. Since February 2021, vaccinations have been incrementally available to Tasmanians and at the time of writing more than 99% of Tasmanians aged over 12 years have received two doses (Tasmanian Government, 2022a). On 15 December 2021, border restrictions eased and interstate and community transmissions are now widespread. Between 15 December 2021 and 30 July 2022, 221,532 cases were reported (Tasmanian Department of Health, 2022).

The study reported here is drawn from a larger project investigating whether and how systems thinking approaches can support improvements to community health and wellbeing. As part of the study, an online survey was designed to gather views from the local government sector in Tasmania on community health and

FIGURE 1 Meadows’ places to intervene in a system and system characteristics. Source: Abson et al. (2017, p. 32). Reproduced with permission
wellbeing. Ethical approval was obtained from the Tasmanian Human Research Ethics Committee (Project ID 20203).

The Local Government Association of Tasmania (LGAT) sent tailored emails to staff and elected representatives in all 29 LGAs inviting participation in the online survey. Council staff included those with an interest and/or role in community health and wellbeing and general managers. A maximum sample of 400 participants was estimated on the basis of councils having up to 12 elected members, including a mayor and general manager (LGAT, 2021). The number of staff with such interest was unknown. I then telephoned some general managers to encourage participation in the survey in an attempt to achieve state-wide participation.

The survey was conducted during October and November 2020 using the secure web-based survey tool Qualtrics. Of the 25 questions asked, the final question was, *what changes did local and state governments in Tasmania make due to COVID-19 that could be used to improve the health of Tasmanians more broadly?* Participants were invited to provide a qualitative response.

Inductive thematic analysis (Mason, 2018) helped me identify ideas from the data about participants’ perspectives on governmental changes for community health and wellbeing. I used an analytical framework described by Braun and Clarke (2006) and a systems mapping process provided by Acaroglu (2021). To test my analysis, I discussed it with the broader project’s research team, all of whom who were familiar with the data. Themes were then considered against Meadows’ (1999) idea that there are places to intervene in a system, which Bolton et al. (2022) have tailored for use in public health.

5 | FINDINGS

There were 135 responses to the survey from people in local governments in Tasmania. Eighty-one participants from 27 of the 29 LGAs responded to the final question about changes governments had made in the state in response to COVID-19 that could be used to improve health and wellbeing more broadly. Among participants, 49% were council officers [CO], comprising general managers (*n* = 14) and other council staff (*n* = 26). The
remaining 51% were elected members [EM], comprising mayors (n = 8) and other elected members (n = 33).

Overwhelmingly, positive themes emerged from the analysis about changes governments implemented in response to the pandemic in Tasmania. Continuing certain changes was advocated because they had multiple health, social, environmental, and economic benefits. These changes included mechanisms to prioritise health and wellbeing, positive and caring communication from governments, a concerted intergovernmental approach, focus on relationships, focus on the local, and hygiene and work practices. However, and to a much lesser extent, negative impacts of changes imposed to manage the pandemic were seen to outweigh the benefits.

Participants wrote that beyond the pandemic, they want health and wellbeing prioritised. Several thought that work could be achieved by giving ongoing attention to the social determinants of health, such as through income and housing support, and a whole-of-government approach called “health in all policies.” One participant noted that “the critical need to provide individuals with a decent living income (JobKeeper and JobSeeker) has proven that a proper cost of living wage lessons acute financial stress and [achieves] better health outcomes” [LGA13/EM23]. At the local level, councils introduced “rates freeze” to provide financial assistance to their community members [LGA8/EM12]. The “suspension of evictions” for tenants [LGA8/EM12] and “brokerage assistance for low-income people for housing” [LGA14/CO35] were identified as opportunities to integrate “health in all policies” [LGA8/EM12]. For a short period, poker machines were not available in Tasmania during the pandemic and one participant said that “reducing access to pokies would have positive health outcomes for many Tasmanians” [LGA13/CO30]. It is noteworthy that in 2020–2021 player expenditure on poker machines (“pokies”, “electronic gaming machines” or “EGMs”) was over AU$191 million in the state (Tasmanian Department of Treasury and Finance, 2021).

Participants also reported that during the early stages of the pandemic in 2020 communication from both the Tasmanian and local governments promoted whole-of-community accord and “emphasised looking after each other which should be continued post Covid” [LGA1/EM3]. One participant wrote that, at the “state government level, there has been a genuine message reminding people to be kind and to care for others. Politicians showing compassion and kindness can send an uplifting message that they do care about the whole community” [LGA13/EM23]. At the local level, community members were encouraged to continue to connect with mayors and deputy mayors who had adopted an “open door policy” [LGA13/EM40]. Participants felt government communication acknowledged the mental health and social isolation impacts of the pandemic that, in addition to encouraging social connection, resulted in “elevated community acceptance and understanding of mental illness and reduced stigma” [LGA1/CO14].

The caring and compassionate forms of communication from state and local governments that participants valued went beyond “looking out for your neighbours” to include a collective approach to build relationships among and across councils, communities, levels of government, and political parties. For example, one participant wrote, “Councils in southern Tasmania have established a much stronger relationship through the social recovery area. Staff have collaborated extensively on determining the councils’ responses to social recovery from COVID. The shared learning and resources have demonstrated how well cross council collaborations can work” [LGA12/CO24]. Participants praised the-then Liberal Premier of Tasmania, Peter Gutwein, for involving the two other major political parties—Labor and the Greens—in decision-making to manage the pandemic on the grounds that it showed a united front. One participant noted how important that unity was for Tasmanians during the unprecedented uncertainty caused by the pandemic [LGA12/EM22].

Efforts to continue a “concerted intergovernmental approach to preventive health” [LGA4/EM35] and ensure that “levels of government [keep] working more closely together” [LGA14/CO9] were viewed as genuine opportunities to achieve better health outcomes. Participants reported that during the height of the pandemic those in each tier of government had a clear understanding about their roles and responsibilities and all of them improved public communication strategies to ensure key messages reached intended audiences. A key change had been their “responsiveness and flexibility” in processes, approaches, and dealing with community need [LGA26/CO16]. The imperative to respond and adapt quickly highlighted existing capabilities among council staff. For example, one participant explained that it is common for councils to outsource council work to respond to critical community needs. However, that person noted that, during the pandemic, “we did not pay consultants to come up with welcomed, deep, and meaningful impact. We did it and we did it with the internal skills of staff” [LGA14/EM25].

Participants viewed local government personnel as essential for identifying and responding to local health and wellbeing needs. For example, in one rural municipality, a participant reported that council provided board games, laptops, and internet connections for disadvantaged families and e-reading devices for elderly citizens, developed an online kids’ activity portal, and distributed...
sports equipment to support mental and physical health during isolation [CO4/LGA18].

Others made it clear that the role of local government is not about “establishing, funding, or staffing health service facilities” [LGA15/EM37], which were identified as a “state government responsibility” [LGA21/EM33]. Rather, they lobbied “for services that are needed” in their communities and the “pandemic has provided clear evidence of [health] services that are lacking” [LGA15/EM37]. Such was the case in relation to mental health services [LGA12/CO24, LGA21/EM33], although increased funding for mental health services and particularly the expansion of telehealth in response to the pandemic were welcomed changes and participants strongly advocated for their continuation. The benefits of expanding telehealth identified by participants included cost savings to the state government because patients would not need to be reimbursed for long distance travel costs and reduced travel time of patients which can adversely impact on their already poor health. One participant reported that people in remote regions in Tasmania travel up to 4 hours for a 10- to 15-minute medical consultation [LGA2/EM13]. Other than when specific procedures are required, it was felt these consultations could be done via telehealth.

As a result of movement restrictions imposed at varying scales during the pandemic, participants reported having renewed appreciation of existing assets within their local communities. For example, local parks, nature reserves, and walking and cycling tracks and trails were identified as valued community assets for both physical and mental health. Participants advocated for a continued focus on local initiatives and scales, including in relation to food security, urging people to grow food locally and working to improve provision of physical infrastructure, including more seating in parks, separated bike lanes, and end-of-trip facilities such as showers and bike storage. Furthermore, the focus on the local rather than on mass tourism was recognised as improving community cohesion and wellbeing.

In response to the increased focus on personal hygiene to reduce the transmission of COVID-19, participants reported that councils increased cleaning regimes and provided more soap and hand sanitiser in community facilities. Along with effective communication strategies to promote sound hygiene, participants thought that increased hygiene standards in their facilities would also reduce the prevalence of other illnesses such as colds and flu. One participant reported that the “general hygiene messaging has been fantastic from an environmental health point of view. Having the PM [prime minister] talk about hand washing is a dream. There is no doubt it will translate to cleaner premises and reduced disease transmission more broadly than just COVID-19” [LGA12/CO25].

Changes to work practices were strongly welcomed by participants. Normalising and providing flexibility in working-from-home arrangements and virtual meetings were thought to improve council employees’ work-life balance. Combined with in-person meetings, participants wanted virtual meetings to continue because of the benefits they offered, among them more effective use of time, reduced vehicle use, and meetings being more inclusive for those who may not usually be able to attend due to time or distance constraints. In Tasmania, council meetings are normally legislated to occur in person and one participant said it was “surprising how quickly [the change to online meetings] could actually be achieved when it was necessary” [LGA23/CO8]. The increased focus on staff health and wellbeing, including “having permission to stay at home when sick rather than ‘soldier on’” were also welcomed changes [LGA12/CO25].

While participants predominately wrote about the positive changes, they wanted to see continue, less favourable aspects were also reported. For example, one participant said that the restrictions were in place for too long and that COVID-19 was being used as an excuse for community inaction [LGA3/EM5], and others felt that the changes imposed had a detrimental effect on physical and mental health and wellbeing [LGA2/CO13; LGA19/EM30]. The financial feasibility of continuing the changes was also raised, with one participant writing:

While there have many temporary positive changes made during the pandemic many of these will not survive post pandemic without additional funding … This funding will have to come from the broader community in the form of increased Medicare levies or new taxes … I just wonder how many of those people continually calling for greater spending on health and other services, would be prepared to contribute more of their income to facilitate these outcomes. Not many, I would suggest. [LGA10/EM39]

Participants identified various changes local and state governments in Tasmania made because of COVID-19 that could be used to improve Tasmanians’ health more broadly. These changes ranged from the ongoing prioritisation of health and wellbeing and action on the social determinants of health, to intergovernmental collaboration, to more flexible work practices. However, participants also reported negative impacts on mental health and wellbeing and concerns about the financial
challenge of maintaining changes started during the pandemic.

6 | DISCUSSION

Participants’ perspectives about changes made in response to the pandemic reveal that parts of the governmental system have been disrupted, remain susceptible to disruption, and affect health-related outcomes from local to national scales. Actions taken to mitigate the impact of COVID-19 have shown the capacity of governments in Australia to work using systems thinking; that is, to be responsive, flexible, and adaptable to meet community needs. Most participants wrote that they wanted many of changes introduced during the pandemic to be retained because of their broader health, social, environmental, and economic benefits.

Perhaps the most significant changes made in response to the pandemic were rapid government actions from narratives about economic growth to those prioritising people’s health. While initially made as an emergency management response, those actions offer a timely reminder that the rules of the system can be changed and shape the conditions that affect population health outcomes, whether they relate to the current threat of COVID-19 or the slow emergency of NCDs. All tiers of government in Australia have power and influence to change these rules, and each tier need to prioritise achieving a higher standard of health for all to the same degree that is given to economic growth (Ison & Straw, 2020). The same prioritisation must also be given to planetary health, because there is “no public health without planetary health” (The Lancet Public Health, 2022, p. 291).

Public polling and research about governmental responses to the pandemic and preventive health has shown Australians strongly support government intervention for health protection and improvement (Goldfinch et al., 2021; Grunseit, 2021). Most participants from the local government sector in Tasmania informed me that they want the prioritisation of people’s health to continue, including action on the social determinants of health. While some changes have been positive in the short-term, an assessment of Australian and subnational policy responses relating to employment, income support, and housing during the pandemic, has shown that more needs to be done to change the systems and policies that contribute to poor health outcomes and health inequities (Friel, Price, et al., 2021). A key challenge to achieve this complex and long-term change agenda exists in the form of the short-term and siloed nature of election cycles.

Political conflict has grown since the early stages of the pandemic, and Australians elected a new federal government in May 2022 showing they want change, but before all that participants welcomed and valued the caring and compassionate communication and unified approach shown by governments. That perception demonstrates a change to a deep leverage point: the mindset out of which “the emergent direction to which a system is oriented” (Abson et al., 2017, p. 32), which was underpinned by the system goal to protect people’s health. The relative success of managing COVID-19 in Australia to date can be attributed “to the entire system’s performance, not to any single individual components” (Bensberg et al., 2021, p. 1), which highlights the dynamics of the system, the importance of relationships, and the necessity of intergovernmental approaches to achieve a desired outcome for any complex issue.

There are many parallels between what is needed for NCD prevention and what is needed to deal with COVID-19. A key element of both is that place-based socio-cultural, demographic, economic, and geographic factors significantly affect health outcomes. While these factors are managed by governments at national, subnational, and local scales, local governments are uniquely positioned to respond to, or advocate for, the specific health needs of their communities—and they already work across a broad range of portfolios that affect the social determinants of health (Browne et al., 2019). The pandemic and the results from the study reported here emphasise local governments’ critical roles in health, existing capacity, and systems thinking capabilities to extend those roles.

These findings highlight the point that when health is prioritised, entrenched system behaviours and rules of the system can change quickly to support health. This type of radical, episodic change is what Foster-Fishman et al. (2007) claim is needed to achieve transformational systems change. Each tier of government has a critical role in managing the rules of society that are largely responsible for population health outcomes. The disruption caused by the pandemic provides an opportunity to potentially transcend paradigms, as described by Meadows (1999), and respond effectively to multiple complex problems simultaneously, such as human and planetary health, and work towards better outcomes for current and future generations.

Globally, the vision of a wellbeing economy is gaining traction (Wellbeing Economy Alliance, 2021; WHO, 2021a), which is “an economy that is designed with the purpose of serving the wellbeing of people and the planet first and foremost; in doing so, it delivers social justice on a healthy planet” (Wellbeing Economy Alliance, 2014). The same prioritisation must also be given to planetary health, because there is “no public health without planetary health” (The Lancet Public Health, 2022, p. 291).

Perhaps the most significant changes made in response to the pandemic were rapid government actions from narratives about economic growth to those prioritising people’s health. While initially made as an emergency management response, those actions offer a timely reminder that the rules of the system can be changed and shape the conditions that affect population health outcomes, whether they relate to the current threat of COVID-19 or the slow emergency of NCDs. All tiers of government in Australia have power and influence to change these rules, and each tier need to prioritise achieving a higher standard of health for all to the same degree that is given to economic growth (Ison & Straw, 2020). The same prioritisation must also be given to planetary health, because there is “no public health without planetary health” (The Lancet Public Health, 2022, p. 291).
Alliance, 2021, p. 6). Countries such as New Zealand and Wales are championing this vision. These countries have reframed whole-of-government actions on the central organising principle of wellbeing, through New Zealand’s Wellbeing Budget and the Welsh Well-being of Future Generations Act 2015 (Jones et al., 2021). A key lesson from these governments, among others, is that “a wellbeing approach must be embedded in every level of government and throughout the public service … [with] a clear public service reform program … [otherwise it] will likely just lead to business as usual, embellished with the language of well-being” (Smith, 2022).

Following New Zealand’s example, Australia’s new government will deliver its first wellbeing budget in October 2022 (Commonwealth of Australia, 2022). The new federal Treasurer, Jim Chalmers, has noted that in addition to traditional economic measures, this budget aims to “have better ways to measure progress, and to measure the intergenerational consequences of our policies” (Commonwealth of Australia, 2022). This budget strengthens existing efforts for a wellbeing approach at the subnational level in Australia, including the Australian Capital Territory Wellbeing Framework (ACT Government, 2020) and the exploration of integrating wellbeing into the business of government in Victoria (Jones et al., 2021). In Tasmania, the state government’s commitment to develop a wellbeing framework, plus the state and local government reforms currently underway there (Rockliff, 2022; Tasmanian Government, 2022b, 2022c) provide an opportunity to embed the multitiered wellbeing approach required for transformational systems change to achieve better health and wellbeing outcomes.

As an alternative to systems goals privileging economic growth and in reference to perspectives of the local government sector in Tasmania, a wellbeing economy is a worthwhile and desirable system goal to pursue. It would go a long way to addressing entrenched socio-spatial inequities, and a healthier population would offer many important co-benefits for other systems, including the economy. For example, economic benefits of a healthier population include improved healthcare system sustainability, workforce productivity and attendance, productive years in the workforce, and gross domestic product; and reduced hospitalisations, absenteeism and presenteeism, and income lost due to disease and premature death (The Australian Prevention Partnership Centre, 2021, p. 4). Collaboratively redesigning policies informed by systems thinking to achieve a wellbeing economy are necessary (Sturmberg et al., 2020).

Drawing on both the literature and the results from the study reported here, several rules of the system can and should be changed to pursue a wellbeing economy. These changes include addressing the social and spatial determinants of health through policies that provide “higher levels of welfare payments for those in need, and higher public investment in education, health and housing, which are financed by higher levels of taxes on the wealthy” (Goldin, 2021), and continuing telehealth, which has improved access to healthcare. These policies have improved population health and reduced health inequities (Fisk et al., 2020; Friel, Price, et al., 2021; Goldin, 2021; Isautier et al., 2020; Ruckert & Labonté, 2017). While helpful in an emergency, quick fixes such as rates freeze, and tenancy evictions are unsustainable and do not address root causes of problems. If the opportunity for transformational systems change for a wellbeing economy is not taken now, poor health outcomes and health inequities are likely to be exacerbated in the longer term (Friel, Price, et al., 2021; Popay et al., 2020; Sharma et al., 2021; Sturmberg et al., 2020).

Finally, it is useful to note two key limitations to the study reported here. The first is that the findings are context specific. Because of the variability of the impact of COVID-19 on different places, the results from this study are not transferrable, but the theoretical and systems perspective are. The second is that the results from the study offer insight for a specific point in time. The pandemic continues to rapidly evolve and therefore perspectives from the local government sector in Tasmania may have already changed. Future research that explores how these perspectives change over time and the attributing factors would offer valuable insights.

7 Conclusion

At the start of this paper, I referred to work by Datu (2020), who noted some of the remarkable changes experienced in Australia early in the response to the COVID-19 pandemic. In response, I have offered a systems thinking perspective on the significance of these changes; the importance of place in responding to local-level health needs; and how the pandemic offers a rare opportunity for transformational change to reorient societal goals to a wellbeing economy. I have grounded this perspective to empirical data from the local government sector in Tasmania, Australia, whereby 81 members from sector shared their views on what governmental changes occurred in response to the pandemic that could be leveraged to improve health more broadly.

Governments at all levels have played a role in containing the spread of COVID-19 to protect population health and reduce the potential for detrimental impact on health systems. These actions have disrupted how
societies function globally and have created a new system goal that prioritises people’s health. The change in system goal has been achieved by modifications to the rules of the system through radical and swift policy intervention to respond to the urgency of COVID-19. However, these changes offer hope for addressing slow emergencies, such as the prevalence of NCDs, as they highlight points within the system that are susceptible and acceptable to change. As has been shown by study participants from the local government sector in Tasmania, the ongoing prioritisation of health and action of the social determinants of health, received overwhelming support.

Collaboratively redesigning policies informed by systems thinking to work towards a system goal that continues to prioritise people’s health is needed. This work will be enabled by government leadership that demonstrates care and compassion for all, and changes to the rules of the system that address the root causes of poor health, such as income protection for those in need, and investments in education, housing, and health, including the continuation of telehealth. Government investment in these actions now may offset the cost of treating people with avoidable NCDs in hospitals in the long term. The time is right to make the transformational changes needed to refocus societal goals and strive for a better future for all, and we all have a role in the system to work towards this change.

ACKNOWLEDGEMENTS
This research was supported by The Australian Prevention Partnership Centre through the NHMRC partnership grant scheme (Grant ID: GNT910003) with the NHMRC, Australian Government Department of Health, ACT Health, Cancer Council Australia, NSW Ministry of Health, South Australian Department for Health and Wellbeing, Tasmanian Department of Health, and VicHealth.

This research was supported by the Tasmanian Government, Department of Health, Public Health Services. The contents of this published material are solely the responsibility of the individual author and do not reflect the views of the Tasmanian Government.

I wish to acknowledge the muwinina and palawa people in Tasmania who are the traditional Aboriginal owners and custodians of the lands upon which this research was undertaken. I also wish to acknowledge the study participants and the Local Government Association of Tasmania for their involvement in this study, and Elaine Stratford, Siobhan Harpur, and Samantha Rowbotham who supported the analysis in this study and provided feedback on draft versions of the paper. Open access publishing facilitated by University of Tasmania, as part of the Wiley - University of Tasmania agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST
The editor-in-chief of this journal is one of the author’s supervisors. As a result, we have been guided by the Committee on Publishing Ethics, ensuring that “every effort is made to minimise any bias in the review process by having another associate editor handle the peer review procedure independently of the editor (recognising that it would be impossible to remove bias completely) and [that] the process is absolutely transparent” (see https://publicationethics.org/case/editor-author-own-journal, accessed last 13 May 2019). There are no other conflicts of interest.

ETHICS STATEMENT
Ethical approval was obtained from the Tasmanian Human Research Ethics Committee (Project ID 20203).

DATA AVAILABILITY STATEMENT
The data are not publicly available due to ethical restrictions.

ORCID
Michelle J. Morgan https://orcid.org/0000-0002-7054-9811

ENDNOTE
1 COAG’s rapid replacement by the National Cabinet in February 2020 was problematic for Australian state and territory governments because new lines of direct accountability from Premiers to the Prime Minister avoided COAG’s longstanding tiers of deliberation through government departments and their respective portfolios and committees of COAG, among them the COAG Health Council. While the speed of decision-making increased, communications within and across member jurisdictions remained challenging. In response, states and territories have exercised more independence in relation to their own affairs and there has been diminished emphasis on national policy. There have been flow-on effects for local governments, but the character and extent are not fully clear, hence the utility of works such as that by Datu (2020).

REFERENCES
Abson, D. J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., Von Wehrden, H., Abernethy, P., Ives, C. D., Jager, N. W., & Lang, D. J. (2017). Leverage points for sustainability transformation. Ambio, 46(1), 30–39. https://doi.org/10.1007/s13280-016-0800-y
Acaroglu, L. (2021). Systems mapping. Medium. Retrieved August 16, 2021 from https://medium.com/disruptive-design/tools-for-systems-thinkers-systems-mapping-2db5f30ab3a
Bambara, C., Riordan, R., Ford, J., & Matthews, F. (2020). The public health 12 framework: Interpreting the COVID-19 pandemic and health inequalities [essay]. *Journal of Epidemiology and Community Health*, 74, 964–968. [https://doi.org/10.1136/jech-2020-214401](https://doi.org/10.1136/jech-2020-214401)

Bambara, C., Smith, K., & Pearce, J. (2019). Scaling up: The politics of health and place. *Social Science and Medicine*, 232, 36–42. [https://doi.org/10.1016/j.socscimed.2019.04.036](https://doi.org/10.1016/j.socscimed.2019.04.036)

Bensberg, M., Joyce, A., & Wilson, E. (2021). Building a prevention system: Infrastructure to strengthen health promotion outcomes. *International Journal of Environmental Research and Public Health*, 18(4), 1–18. [https://doi.org/10.3390/ijerph18041618](https://doi.org/10.3390/ijerph18041618)

Bissell, D. (2021). A changing sense of place: Geography and COVID-19. *Geographical Research*, 59(2), 150–159. [https://doi.org/10.1111/1745-5871.12465](https://doi.org/10.1111/1745-5871.12465)

Blundell, R., Dias, M. C., Joyce, R., & Xu, X. (2020). COVID-19 and inequalities. *Fiscal Studies*, 41, 291–319. [https://doi.org/10.1111/1475-5890.12232](https://doi.org/10.1111/1475-5890.12232)

Bogdewic, S., & Ramaswamy, R. (2021). Developing complexity-informed COVID-19 responses to optimize community well-being: A systems thinking approach. *System*, 9(3), 68. [https://doi.org/10.3390/systems9030068](https://doi.org/10.3390/systems9030068)

Bolton, K., Whelan, J., Fraser, P., Bell, C., Allender, S., & Brown, A. (2022). The public health 12 framework: Interpreting the ‘Meadows 12 places to act in a system’ for use in public health. *Archives of Public Health*, 80(72), 1–8. [https://doi.org/10.1186/s13690-022-00835-0](https://doi.org/10.1186/s13690-022-00835-0)

Bradley, D. T., Mansouri, M. A., Kee, F., & Garcia, L. M. T. (2020). A systems approach to preventing and responding to COVID-19. *EClinicalMedicine*, 21, 100325. [https://doi.org/10.1016/j.eclinm.2020.100325](https://doi.org/10.1016/j.eclinm.2020.100325)

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. [https://doi.org/10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)

Bromfield, N., & McConnell, A. (2021). Two routes to precarious success: Australia, New Zealand, COVID-19 and the politics of crisis governance. *International Review of Administrative Sciences*, 87(3), 518–535. [https://doi.org/10.1177/0020852320972465](https://doi.org/10.1177/0020852320972465)

Browne, G. R., Davern, M., & Giles-Corti, B. (2019). ‘Punching above their weight’: A qualitative examination of local governments’ organisational efficacy to improve the social determinants of health. *Australian and New Zealand Journal of Public Health*, 43(1), 81–87. [https://doi.org/10.1111/1753-6405.12847](https://doi.org/10.1111/1753-6405.12847)

Collins, C., McCartney, G., & Garnham, L. (2015). Neoliberalism and health inequalities. In K. Smith, C. Bambara, & S. Hill (Eds.), *Health inequalities: Critical perspectives* (pp. 124–137). Oxford University Press.

Commonwealth of Australia. (2022). *Press conference by Jim Chalmers*. Treasurer of the Commonwealth of Australia. Retrieved August 8, 2022 from [https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/transcripts/press-conference-parliament-house-comeberra](https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/transcripts/press-conference-parliament-house-comeberra)

Crooks, V., Andrews, G., & Pearce, J. (Eds.). (2018). *Routledge handbook of health geography*. Routledge.

Curtis, S. (2004). *Health and inequality: Geographical perspectives*. Sage.

Datu, K. (2020). Coronavirus disease and local government. *Geographical Research*, 58(3), 310–312. [https://doi.org/10.1111/14780887.12414](https://doi.org/10.1111/14780887.12414)

Elphick, K. (2020). *National emergency and disaster response arrangements in Australia: a quick guide*. Commonwealth of Australia. Retrieved November 15, 2021 from [https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1920/Quick_Guides/NationalEmergencyDisasterManagement](https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1920/Quick_Guides/NationalEmergencyDisasterManagement)

Fisk, M., Livingstone, A., & Pit, S. W. (2020). Telehealth in the context of COVID-19: Changing perspectives in Australia, the United Kingdom, and the United States. *Journal of Medical Internet Research*, 22(6), e19264. [https://doi.org/10.2196/19264](https://doi.org/10.2196/19264)

Foster-Fishman, P. G., Nowell, B., & Yang, H. (2007). Putting the system back into systems change: A framework for understanding and changing organizational and community systems. *American Journal of Community Psychology*, 39, 197–215. [https://doi.org/10.1007/s10464-007-9109-0](https://doi.org/10.1007/s10464-007-9109-0)

Friel, S., Price, S., Goldman, S., Baum, F., Townsend, B., & Schram, A. (2021). Australian COVID-19 policy responses: A health equity report card. [http://regnet.anu.edu.au/sites/default/files/uploads/%5Bcurrent-date%3Acustom%3AY%5D-%5Bcurrent-date%3Acustom%3Am%5D/MCHGCorvidReport2021v20Final.pdf](http://regnet.anu.edu.au/sites/default/files/uploads/%5Bcurrent-date%3Acustom%3AY%5D-%5Bcurrent-date%3Acustom%3Am%5D/MCHGCorvidReport2021v20Final.pdf)

Friel, S., Townsend, B., Fisher, M., Harris, P., Freeman, T., & Baum, F. (2021). Power and the people’s health. *Social Science and Medicine*, 282, 114173. [https://doi.org/10.1016/j.socscimed.2021.114173](https://doi.org/10.1016/j.socscimed.2021.114173)

Ghebreyesus, T. A. (2020). WHO Director-General’s opening remarks at the media briefing on COVID-19, 11 March 2020. World Health Organization.

Girum, T., Lentiero, K., Geremew, M., Migora, B., Shewamare, S., & Shimbre, M. S. (2021). Optimal strategies for COVID-19...
prevention from global evidence achieved through social distancing, stay at home, travel restriction and lockdown: A systematic review. Archives of Public Health, 79(1), 150. https://doi.org/10.1186/s13690-021-00663-8

Goldfinch, S., Taplin, R., & Gould, R. (2021). Trust in government increased during the Covid-19 pandemic in Australia and New Zealand. Australian Journal of Public Administration, 80(1), 3–11. https://doi.org/10.1111/1467-8500.12459

Goldin, I. (2021). COVID-19: How rising inequalities unfolded and why we cannot afford to ignore it. The Conversation. Retrieved November 11, 2021 from https://theconversation.com/covid-19-how-rising-inequalities-unfolded-and-why-we-cannot-afford-to-ignore-it-161132

Grove, K., Rickards, L., Anderson, B., & Kearnes, M. (2021). The uneven distribution of futurity: Slow emergencies and the event of COVID-19. Geographical Research, 60, 6–17. https://doi.org/10.1111/1745-5871.12501

Gruneit, A. (2021). AUSPOPS 2016–2021: Third national report. The Australian Prevention Partnership Centre.

Isautier, J. M., Copp, T., Ayre, J., Cvejc, E., Meyerowitz-Katz, G., Batcup, C., Bonner, C., Dodd, R., Nickel, B., Pickles, K., Cornell, S., Dakin, T., & McCaffrey, K. J. (2020). People’s experiences and satisfaction with telehealth during the COVID-19 pandemic in Australia: Cross-sectional survey study. Journal of Medical Internet Research, 22(12), e24531. https://doi.org/10.2196/24531

Ison, R., & Straw, E. (2020). The hidden power of systems thinking: Governance in a climate emergency. Routledge.

Jebb, S., Finegood, D., Roux, A. D., Rutter, H., Clarkson, J., Frank, J., Roos, N., Bonell, C., Michie, S., & Hawe, P. (2021). Systems-based approaches in public health: Where next? UK Academy of Medical Sciences and Canadian Academy of Health Sciences.

Jones, A., Morelli, G., Pettigrew, S., & Neal, B. (2021). Report: Integrating wellbeing into the business of government: The feasibility of innovative legal and policy measures to achieve sustainable development in Australia. Victorian Health Promotion Foundation by The George Institute for Global Health.

Joyce, P., Maron, F., & Reddy, P. S. (Eds.) (2020). Good public governance in a global pandemic. The International Institute of Administrative Sciences. https://doi.org/10.46996/psg.v1e1

Liu, B., Spokes, P., He, W., & Kaldor, J. (2021). High risk groups for severe COVID-19 in a whole of population cohort in Australia. BMC Infectious Diseases, 21(1), 685. https://doi.org/10.1186/s12879-021-06378-z

Local Government Association of Tasmania. (2021). What is local government? Local Government Association of Tasmania. Retrieved August 16, 2021 from https://www.lgat.tas.gov.au/tasmanian-councils/what-is-local-government

Luke, D. A., & Stamatakis, K. A. (2012). Systems science methods in public health: Dynamics, networks, and agents. Annual Review of Public Health, 33(1), 357–376. https://doi.org/10.1146/annurev-publhealth-031210-101222

MapSVG. (2021). SVG vector map of Australia. MapSVG. Retrieved August 23, 2021 from https://mappy.svg.com/maps/australia

Marmot, M., & Bell, R. (2019). Social determinants and non-communicable diseases: Time for integrated action. BMJ, 364, 10–12. https://doi.org/10.1136/bmj.l251

Mason, J. (2018). Qualitative research (Third ed.). SAGE.

Maza, A., & Hierro, M. (2021). Modelling changing patterns in the COVID-19 geographical distribution: Madrid’s case. Geographical Research, 60, 218–231. https://doi.org/10.1111/1745-5871.12521

McCoy, D. (2020). What exactly is the government’s coronavirus strategy? https://www.qmum.ac.uk/media/news/2020/pr/what-exactly-is-the-governments-coronavirus-strategy.html

Meadows, D. (1999). Leverage points: Places to intervene in a system. The Sustainability Institute. Retrieved November 15, 2021 from https://donellameadows.org/wp-content/userfiles/Leverage_Points.pdf

Midgley, G. (1992). Pluralism and the legitimation of systems science. Systems Practice, 5(2), 147–170. https://doi.org/10.1007/BF01059938

OECD. (2020). The territorial impact of COVID-19: Managing the crisis across levels of government. OECD.

Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (4th ed.). SAGE.

Pearce, J. (2018). Complexity and uncertainty in geography of health research: Incorporating life-course perspectives. Annals of the American Association of Geographers, 108(6), 1491–1498. https://doi.org/10.1080/24694452.2017.1416280

Pearce, J., Mitchell, R., & Shortt, N. (2015). Place, space, and health inequalities. In K. Smith, S. Hill, & C. Bambra (Eds.), Health inequalities: Critical perspectives (pp. 192–205). Oxford University Press.

Peters, D. (2014). The application of systems thinking in health: Why use systems thinking? Health Research Policy and Systems, 12(51), 1–6. https://doi.org/10.1186/1478-4505-12-51

Phillips, B., Gray, M., & Biddle, N. (2020). COVID-19 JobKeeper and JobSeeker impacts on poverty and housing stress under current and alternative economic and policy scenarios. Australian National University.

Popay, J., Whitehead, M., Ponsford, R., Egan, M., & Mead, R. (2020). Power, control, communities and health inequalities: Theories, concepts and analytical frameworks. Health Promotion International, 1–11, 1253–1263. https://doi.org/10.1093/heapro/daa133

Recio, R. B., Lata, L. N., & Chatterjee, I. (2021). Rising inequalities, deepening divides: Urban citizenship in the time of COVID-19. Geographical Research, 59, 500–513. https://doi.org/10.1111/1745-5871.12495

Rockliff, J. (2022). Progressing Tasmania’s first Wellbeing Framework [Media release]. https://www.premier.tas.gov.au/site_resources_2015/additional_releases/progressing_tasmanias_first_wellbeing_framework

Ruckert, A., & Labonté, R. (2017). Health inequities in the age of austerity: The need for social protection policies. Social Science and Medicine, 187, 306–311. https://doi.org/10.1016/j.socscimed.2017.03.029

Sharma, S., Walton, M., & Manning, S. (2021). Social determinants of health influencing the New Zealand COVID-19 response and recovery: A scoping review and causal loop diagram. System, 9(3), 52. https://doi.org/10.3390/systems.09030052

Smith, W. (2022). Beyond GDP: Chalmers’ historic moment to build wellbeing. The Conversation. Retrieved August 8, 2022 from https://theconversation.com/beyond-gdp-chalmers-historic-moment-to-build-wellbeing-184318
