



# Should health professionals participate in civil disobedience in response to the climate change health emergency?

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## Introduction

Climate change is a global health emergency and a growing ethical crisis,<sup>1,2</sup> and well planned climate action brings opportunities to improve health, equity, and human rights.<sup>3–7</sup> In the face of continued inaction, citizens are turning to civil disobedience to persuade governments to act more urgently.<sup>8</sup> Civil disobedience is public, non-violent action in breach of the law, which is aimed at changing the law or policies of the government. Such action is an act of conscience, and participants accept possible punishment. Health professionals are beginning to advocate for<sup>9</sup> and participate in these actions.<sup>10,11</sup> Several movements for social change have taken civil disobedience action,<sup>12,13</sup> but participation by health workers in their professional capacity could involve risks, and relatively little has been written to assist decision making about whether to participate. In this Viewpoint, we apply a framework to guide decision making by considering whether climate change justifies civil disobedience by health professionals as part of our duty of care. The framework comes from a western ethics paradigm, and we acknowledge that many people who relate to this paradigm are relatively protected from early climate–health effects. This protection is not the case for many other people, especially those in climate-vulnerable countries and Indigenous communities. Nonetheless, the framework includes principles that are common currency for health professionals.

## Health professionals' ethical obligations in society versus the law

Many professional bodies in health articulate an ethical duty to address societal matters that affect population health,<sup>14,15</sup> and health professionals have a long history of

speaking out about the social, economic, and political conditions that affect health.<sup>16–18</sup> The American Medical Association Code of Medical Ethics is explicit about possible conflict between doctors' ethical duties and the law, opining that “ethical responsibilities usually exceed legal duties...[W]hen physicians believe a law violates ethical values or is unjust they should work to change the law. In exceptional circumstances of unjust laws, ethical responsibilities should supersede legal duties.”<sup>19–21</sup> By its nature, the law will not provide guidance in every case, and although legal norms are important, they can be blunt tools and will not coincide with what is ethical in every situation.

## Definitions of civil disobedience

There are various definitions of civil disobedience. Bedau's 1961 paper<sup>22</sup> on civil disobedience informed Rawls' *A Theory of Justice*, which defines civil disobedience as “a public, non-violent, conscientious yet political act contrary to law usually done with the aim of bringing about a change in the law or policies of the government”.<sup>23</sup> Rawls describes civil disobedience as a duty that arises when the duty to oppose an injustice becomes greater than the duty to comply with the law. In his analysis of civil disobedience in health care, Childress<sup>24</sup> argues that submitting to the consequences of disobedience (eg, arrest or punishment) is a hallmark of civil disobedience because it shows respect for the legal–political system that maintains order.

Not all definitions of civil disobedience require it to be non-violent and public, but these elements are important principles for health professionals. The principle of first doing no harm directs health professionals when the benefits of an action are uncertain. Violence is highly inconsistent with a health professional's duty of care, indicating that health professionals should adhere to peaceable means. Sometimes the phrase peaceful civil disobedience is used, but we are following Rawls, who includes non-violence as a key element of civil disobedience. Public civil disobedience (eg, informing the media in advance) is important for communicating with the public and policy makers and is therefore a way of maximising the benefits of civil disobedience. Communication is the key instrument of advocacy,<sup>25,26</sup> and Bedau<sup>22</sup> argues that civil disobedience is a civic act aimed at communicating and drawing attention to issues that the whole community should consider.

## Health professionals' civil disobedience

There are many examples of civil disobedience by health professionals. Alex Wodak, a physician focusing on drug

### Panel 1: Criteria for assessing the justifiability of health professionals' civil disobedience

- There are well justified, evidence-based reasons for believing a policy, law, or state of affairs is what we term significantly unjust, meaning that a policy, law, or state of affairs is unfair to such an extent that civil disobedience is a proportionate response
- Disobedience is the last resort or any political or legal avenues that remain are likely to be fruitless or could result in preventable harm
- There is a reasonable chance that the civil disobedience action will be effective and that the effectiveness will outweigh possible negative outcomes
- The least harmful form of civil disobedience should be adopted; peaceful, educational actions should be prioritised over actions that might be coercive or increase inequities
- Any obligation to participate is greater for health professionals whose personal, professional, and sociopolitical circumstances mean that they and those they love and care for are at lesser risk of substantial harm from such actions

and alcohol harm, established an illegal needle exchange service in 1986 in Australia. Although the police did not press charges, he described going through “purgatory to do what was right” and risked relationships with family and friends and his registration.<sup>27</sup> In the Billboard Utilising Graffitiists Against Unhealthy Promotions (BUGA-UP) campaign, health professionals graffitied billboards that advertised tobacco, and a doctor was convicted of maliciously injuring private property and given a small fine.<sup>28,29</sup> In New Zealand, an emergency physician was arrested in 2015 for sitting on top of a car, protesting a trade deal with implications for the affordability of medicines. He was given a warning by the police and summoned to a disciplinary meeting with his employer.<sup>30</sup> In 2019, doctors have been arrested (but not charged) in London, UK, for civil disobedience around climate change.<sup>11</sup> Although the response of the legal system has been relatively mild, the personal experience of some health professionals who have undertaken civil disobedience is of indirect effects on their employability and ability to secure academic postings and research funding (Chesterfield-Evans A, independent medical practitioner and politician, Australia, personal communication). It is possible, at least in New Zealand, that if a doctor’s civil disobedience action is perceived to bring discredit to the profession or reflect adversely on fitness to practise, then a doctor could become subject to a professional conduct review.<sup>31</sup>

Attributing causality between health advocacy and public opinion or policy change is much more difficult than establishing causality between proximal risk factors and disease.<sup>32,33</sup> Furthermore, there are few attempts to evaluate formally the effectiveness of civil disobedience in the health context.<sup>34</sup> In some cases, however, civil disobedience was followed relatively quickly by shifts in law or policy.<sup>34</sup> Wodak states that within 2 years of his illegal needle exchange being established, all Australian states had legalised needle exchange.<sup>27</sup> Experts claim that the BUGA-UP campaign on tobacco advertising was pivotal in achieving public support for tobacco control, yet they are careful to highlight that many other interventions influenced the decline in smoking in Australia.<sup>28,32</sup>

### Framework for assessing the justifiability of civil disobedience action

Beyond considering elements of the definition of civil disobedience, several ethical principles and concepts can be used as criteria by health professionals for assessing its justifiability. We have drawn on Rawls’ analysis and interpretations by Childress and others within the health context to adapt a set of five criteria for assessing the justifiability of health professionals’ civil disobedience (panel 1).<sup>19,20,22–24,35,36</sup>

The first two criteria address whether an issue is a justifiable candidate for civil disobedience. In defining what we can label as significantly unjust, we draw on

#### Panel 2: Justifiability of health professionals’ civil disobedience for climate action in New Zealand

##### Criterion 1: situation is unjust

*Criterion is fulfilled*

- Evidence of high climate pollution per capita and insufficient action by New Zealand,<sup>40–42</sup> which is what we label as significantly unjust by causing disproportionate climate harm (affecting fundamental human rights) for people in low-income countries and for children, future generations, and Indigenous peoples<sup>43–46</sup>
- Missed opportunities for health and equity gain from climate action focused on equity, and the benefits of inaction accrue to the most privileged and powerful groups in society
- The climate crisis is at the point at which the failure of the state to act should not be tolerated by citizens, including physicians (Rawls’ justice being the first virtue of social institutions)<sup>23</sup>

##### Criterion 2: civil disobedience is the last resort

*Criterion is fulfilled*

- Health professionals in New Zealand have published work, engaged the media, submitted and written to the government, joined citizen marches, met elected representatives, spoken at public and professional events, and formed alliances to present formal calls for action to the New Zealand Government and international bodies;<sup>47–49</sup> further pursuit of all legal avenues will result in harm to the climate and health, given the rapidly closing window for action to limit global temperature rise<sup>50</sup>

##### Criterion 3: civil disobedience is more effective than harmful

*Whether or not the criterion is fulfilled depends on the action*

- Participation by health professionals might increase the effectiveness of actions by adding credibility and seriousness,<sup>51</sup> use relative privilege and power to support less advantaged protestors (eg, Māori),<sup>52</sup> and highlight links between climate change and health;<sup>53</sup> well planned actions using principles of effective advocacy are more likely to be effective
- But such participation might undermine credibility with decision makers, shifting health professionals to being outside of the policy making process, and might undermine public trust in health professionals<sup>54</sup>

##### Criterion 4: civil disobedience is the least harmful action

*Whether or not the criterion is fulfilled is uncertain and depends on the action*

- Non-violent, non-coercive civil disobedience that does not impinge on fundamental human rights is important for health professionals; for example:
  - Trespassing or occupying area alongside Indigenous communities whose lands and health are threatened by fossil fuel extraction
  - Making minor property damage if it is relatively direct and understandable to public (eg, graffiti on a corporate truck delivering coal to a hospital)

##### Criterion 5: consideration of the sociopolitical situation

*Greater obligation for New Zealand than for some other countries*

- New Zealand health professionals have a greater obligation to consider civil disobedience than do health professionals in some other sociopolitical systems, especially people in professional roles that do not preclude participation and whose participation carries reduced risk because they enjoy good health, do not have responsibilities for dependants, and do not belong to groups experiencing discrimination

Rawls’ notion of justice as fairness, stating that equal concern and respect should be accorded to all citizens. For Rawls, justice is the first virtue of social institutions, so if our laws, policies, or state become unjust, this

For more on OraTaiao: New Zealand Climate and Health Council see [www.orataiao.org.nz](http://www.orataiao.org.nz)

situation cannot be ignored.<sup>23</sup> Brownlee's concept of non-contingent needs is also a helpful test for what is unjust and correlates with fundamental human rights as defined in UN documents.<sup>36-38</sup> Brownlee outlines non-contingent needs as grave, urgent, and related to survival including water, food, shelter, security, education, protection of reasoning capacity, expressive agency, a degree of autonomy, social inclusion, respect, and recognition. These needs map onto the fundamental human rights to life, health, security, safe water, food and housing, education, personhood, freedom to participate in community, and freedom of movement, thought, opinion, and expression. Thus, we also view a breach of fundamental human rights as a measure of significant injustice. Both Bedau and Brownlee propose that civil disobedience should be a last resort but concede that when lawful avenues have been fruitless, or if the pursuit of all avenues would take so much time that harm would result, then civil disobedience becomes justifiable. In other words, the last resort might occur at a point in time before all avenues of action have been exhausted.

The third and fourth criteria consider whether participation in any planned action or event of civil disobedience is justifiable. Criterion three tries to quantify an action's effectiveness against its possible negative outcomes in advance of any action. We suggest that health professionals could consider the general principles of effective advocacy (eg, good communication and synergy with other interventions),<sup>26,32</sup> weighed against the likelihood that an action will impinge on the fundamental human rights of others.<sup>36</sup> The fourth criterion stipulates that civil disobedience use the mildest response possible to address the crisis or issue at hand.<sup>36</sup>

The fifth criterion recognises that civil disobedience carries risk and that the distribution of risk is inequitable in different personal and professional situations and political systems. It therefore considers the level of risk to health professionals in their own context. For example, many Indigenous environmental defenders have been murdered in countries where democracy and the rule of law are not functional.<sup>39</sup> Health professionals in low risk situations could be argued to have a moral obligation (ie, a duty of care or necessity)<sup>36</sup> to respond to health injustices, including using civil disobedience as a last resort.

### Application to civil disobedience for climate health in New Zealand

As an example of applying the five criteria, we have used them to consider the justifiability of health professionals participating in civil disobedience to accelerate climate action in New Zealand (panel 2). By way of context, New Zealand is a high-income country with a functioning democracy. There are substantial socioeconomic and health inequities between the Indigenous Māori

population and the New Zealand European population as a result of colonisation.<sup>7</sup>

In the New Zealand context, insufficient climate action fulfils the criteria of being significantly unjust. Conventional advocacy has persistently failed, making civil disobedience justifiable as a last resort. However, judgments about the effectiveness of actions outweighing negative consequences and causing the least harm are far from clear and depend heavily on the characteristics of particular actions. The obligation and duty of care to protest against climate inaction is arguably greater for health professionals in the relatively safe sociopolitical circumstances of New Zealand than for those in more precarious situations.

### Conclusion

Climate change is an urgent issue for health, equity, and survival. Despite this situation, governments and institutions have consistently failed to take fair or sufficient action. Civil disobedience in response to this inaction is growing, and health professionals are beginning to participate. Climate change is thus a good context in which to debate the important professional ethics issue of civil disobedience. To contribute to the debate, we have outlined important definitions of civil disobedience, and then adapted and applied a set of ethical criteria to assist decision making.

In both the global and New Zealand contexts, the impacts of climate health stand out as significantly unjust. Extensive health advocacy has had little effect. Whether the effectiveness of an action outweighs its negative consequences depends upon the case, but the obligation to act is greater in New Zealand, where participation incurs a lower risk of harm than in some other countries.

Rather than arguing a position for or against civil disobedience by health professionals in response to climate change, we suggest that it sits within a spectrum of possible health professional advocacy actions and requires careful, context-dependent consideration on a case by case basis. We hope that our analysis and adapted criteria can assist health professionals in decision making and contribute to further debate on this important issue.

#### Contributors

HB, AM, RJ, and AB conceptualised the research design. HB led the literature review and drafting with input from all other authors. All authors were equally involved in discussing and revising the final content of the manuscript.

#### Declaration of interests

AM and RJ are both co-convenors of OraTaiao: New Zealand Climate and Health Council, a not-for-profit, Incorporated Society of health professionals advocating for healthy climate action. These roles are unpaid, voluntary, and elected by members. HB and AB are members of OraTaiao, and AB reports fees from WHO, outside the submitted work. JM declares no competing interests.

#### References

- 1 McCoy D, Montgomery H, Arulkumaran S, Godlee F. Climate change and human survival. *BMJ* 2014; **348**: g2351.

- 2 Patz J, Gibbs H, Foley J, Rogers J, Smith K. Climate change and global health: quantifying a growing ethical crisis. *EcoHealth* 2007; 4: 397–405.
- 3 Smith K, Woodward A, Campbell-Lendrum D, et al. Human health: impacts, adaptation, and co-benefits. In: Field C, Barros V, eds. *Climate change 2014: impacts, adaptation and vulnerability: contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press, 2014: 709–54.
- 4 Watts N, Adger WN, Agnolucci P, et al. Health and climate change: policy responses to protect public health. *Lancet* 2015; 386: 1861–914.
- 5 Haines A, McMichael AJ, Smith KR, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: overview and implications for policy makers. *Lancet* 2009; 374: 2104–14.
- 6 Bennett H, Jones R, Keating G, Woodward A, Hales S, Metcalfe S. Health and equity impacts of climate change in Aotearoa–New Zealand, and health gains from climate action. *N Z Med J* 2014; 127: 16–31.
- 7 Jones R, Bennett H, Keating G, Blaiklock A. Climate change and the right to health for Māori in Aotearoa/New Zealand. *Health Hum Rights* 2014; 16: 54–68.
- 8 Watts J. Germany's dirty coalmines become the focus for a new wave of direct action. *The Guardian*, Nov 8, 2017. <https://www.theguardian.com/environment/2017/nov/08/germanys-dirty-coalmines-become-the-focus-for-a-new-wave-of-direct-action> (accessed Feb 16, 2018).
- 9 Underwood J, Middleton J, Pencheon D, et al. Doctors against climate catastrophe. *The Guardian*, Jun 27, 2019. <https://www.theguardian.com/environment/2019/jun/27/doctors-against-climate-catastrophe> (accessed Oct 14, 2019).
- 10 Iacobucci G. Campaign group urges GMC to support doctors taking direct action against climate change. *BMJ* 2019; 366: 15785.
- 11 Mahase E. Doctors for Extinction Rebellion: new group fights for planetary and public health. *BMJ* 2019; 365: 12364.
- 12 Brownlee K. Civil disobedience. In: Zalta E, ed. *The Stanford encyclopedia of philosophy*. Stanford: Stanford University, 2017.
- 13 Powers R, Vogele W, eds. *Protest, power, and change: an encyclopedia of non-violent action from ACT-UP to women's suffrage*. New York: Routledge, 2011.
- 14 New Zealand Medical Association. *Code of Ethics for the New Zealand Medical Profession*. Wellington: Medical Association, 2014.
- 15 New Zealand Medical Association. *Consensus statement on the role of the doctor in New Zealand*. Wellington: Medical Association, 2011.
- 16 Dunk JH, Jones DS, Capon A, Anderson WH. Human health on an ailing planet—historical perspectives on our future. *N Engl J Med* 2019; 381: 778–82.
- 17 Earnest MA, Wong SL, Federico SG. Perspective: physician advocacy: what is it and how do we do it? *Acad Med* 2010; 85: 63–67.
- 18 Dobson S, Voyer S, Regehr G. Perspective: agency and activism: rethinking health advocacy in the medical profession. *Acad Med* 2012; 87: 1161–64.
- 19 Macauley R. The Hippocratic underground: civil disobedience and health care reform. *Hastings Cent Rep* 2005; 35: 38–45.
- 20 Wynia M. Civic obligations in medicine: does “professional” civil disobedience tear, or repair, the basic fabric of society? *AMA J Ethics* 2004; 6: 30–32.
- 21 American Medical Association. *Preamble to the AMA code of medical ethics*. 2016. <https://www.ama-assn.org/about/publications-newsletters/code-medical-ethics-preface-preamble> (accessed Nov 29, 2019).
- 22 Bedau H. On civil disobedience. *J Philos* 1961; 58: 653–65.
- 23 Rawls J. *A theory of justice*, revised edition. Cambridge: Harvard University Press, 1999.
- 24 Childress JF. Civil disobedience, conscientious objection, and evasive noncompliance: a framework for the analysis and assessment of illegal actions in health care. *J Med Philos* 1985; 10: 63–83.
- 25 Chapman S. *Public health advocacy and tobacco control: making smoking history*. Oxford: Blackwell, 2007.
- 26 Rose C. *How to win campaigns: communication for change*. London: Earthscan, 2010.
- 27 Benson K. Doctor took the law into his own hands. *Sydney Morning Herald*, June 14, 2010. <https://www.smh.com.au/national/doctor-took-the-law-into-his-own-hands-20100613-y64t.html> (accessed June 20, 2018).
- 28 Chapman S. Civil disobedience and tobacco control: the case of BUGA UP: Billboard Utilising Graffitiists Against Unhealthy Promotions. *Tob Control* 1996; 5: 179–85.
- 29 Chesterfield-Evans A. Confessions of a simple surgeon. July 25, 2012. <https://www.youtube.com/watch?v=ZJqp8v6jHkg> (accessed Oct 11, 2019).
- 30 Ratley N. DHB told “pull head in” over efforts to discipline doctor for TPPA protest. *Stuff*, Sept 17, 2015. <https://www.stuff.co.nz/national/health/72147480/dhb-told-pull-head-in-over-efforts-to-discipline-doctor-for-tppa-protest> (accessed Oct 15, 2019).
- 31 New Zealand Parliament. *Health Practitioners Competence Assurance Act 2003*. September 2003. <http://www.legislation.govt.nz/act/public/2003/0048/latest/DLM203312.html> (accessed Nov 26, 2019).
- 32 Chapman S. Unravelling gossamer with boxing gloves: problems in explaining the decline in smoking. *BMJ* 1993; 307: 429–32.
- 33 McMichael AJ. Prisoners of the proximate: loosening the constraints on epidemiology in an age of change. *Am J Epidemiol* 1999; 149: 887–97.
- 34 Keefe RH, Lane SD, Swarts HJ. From the bottom up: tracing the impact of four health-based social movements on health and social policies. *J Health Soc Policy* 2006; 21: 55–69.
- 35 Morreim EH, Wynia M, Clark C, Macauley R. Civil disobedience: the devil is in the details. *Hastings Cent Rep* 2005; 35: 4–7.
- 36 Brownlee K. *Conscience and conviction: the case for civil disobedience*. Oxford: Oxford University Press, 2012.
- 37 UN General Assembly. *Universal Declaration of Human Rights, 217 (III) A*. Paris: United Nations, 1948.
- 38 UN General Assembly. *International Covenant on Economic, Social and Cultural Rights, A/RES/2200, Dec 16, 1966*. <https://www.ohchr.org/en/professionalinterest/pages/cescr.aspx> (accessed Oct 15, 2019).
- 39 Watts J. Philippines is deadliest country for defenders of the environment. *The Guardian*, July 30, 2019. <https://www.theguardian.com/environment/2019/jul/30/philippines-deadliest-country-defenders-environment-global-witness> (accessed Oct 11, 2019).
- 40 Metcalfe S. Fast, fair climate action crucial for health and equity. *N Z Med J* 2015; 128: 13–17.
- 41 Parliamentary Commissioner for the Environment. *New Zealand's contribution to the new international climate change agreement: submission to the Minister for Climate Change Issues and the Minister for the Environment*. Wellington: Office of the Parliamentary Commissioner for the Environment, 2015.
- 42 Climate Analytics, New Climate Institute, Potsdam Institute for Climate Impacts Research. *Climate action tracker: country summary for New Zealand*. Sept 19, 2019. <https://climateactiontracker.org/countries/new-zealand/> (accessed Oct 11, 2019).
- 43 UN Committee on the Rights of the Child. *Concluding observations on the fifth periodic report of New Zealand: paragraph 34: impact of climate change on the rights of the child*. 2016. [http://tbinternet.ohchr.org/Treaties/CRC/Shared%20Documents/NZL/INT\\_CRC\\_COC\\_NZL\\_25459\\_E.pdf](http://tbinternet.ohchr.org/Treaties/CRC/Shared%20Documents/NZL/INT_CRC_COC_NZL_25459_E.pdf) (accessed Oct 15, 2019).
- 44 Mary Robinson Foundation. *Climate justice: meeting the needs of future generations: applying the principle of intergenerational equity to the 2015 processes on climate change and sustainable development, position paper*. Dublin: Mary Robinson Foundation, 2015.
- 45 Tauli-Corpuz V. *Report of the Special Rapporteur on the rights of indigenous peoples to the Human Rights Council, 36th session, A/HRC/36/46*. Nov 1, 2017. [https://ap.ohchr.org/documents/dpage\\_e.aspx?si=A/HRC/36/46](https://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/36/46) (accessed Oct 15, 2019).
- 46 Fanon-Mendes M, Shaheed F, de Zayas A, et al. *Joint statement by UN Special Procedures on the Occasion of World Environment Day*. June 5, 2015. <http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=16049&LangID=E> (accessed Oct 15, 2019).
- 47 Macmillan A, Jones R, Bennett H. *New Zealand health professional organisations' joint call for action on climate change and health*. *N Z Med J* 2014; 127: 5–8.

- 48 New Zealand Climate and Health. Health professionals march for healthy climate solutions. *Scoop NZ*, Nov 27, 2015. <http://www.scoop.co.nz/stories/PO1511/S00440/health-professionals-march-for-healthy-climate-solutions.htm> (accessed Aug 23, 2016).
- 49 Blue and Green Tomorrow. Unprecedented global medical consensus: action on climate needed for our patients. *Blue and Green Tomorrow*, Dec 5, 2015. <https://blueandgreentomorrow.com/society/cop21-unprecedented-global-medical-consensus-action-on-climate-needed-for-our-patients/> (accessed Aug 23, 2016).
- 50 Masson-Delmotte V, Zhai P, Pörtner HO, et al, eds. Global warming of 1.5°C: an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways. Geneva: Intergovernmental Panel on Climate Change, 2018.
- 51 Berger D. When doctors start civil disobedience it's time to take notice. *BMJ* 2016; **352**: i996.
- 52 Donohoe M. Roles and responsibilities of health care professionals in combating environmental degradation and social injustice: education and activism. *Monash Bioeth Rev* 2008; **27**: 65–82.
- 53 Maibach EW, Nisbet M, Baldwin P, Akerlof K, Diao G. Reframing climate change as a public health issue: an exploratory study of public reactions. *BMC Public Health* 2010; **10**: 299.
- 54 Vox F. The risks of professional protest. *AMA J Ethics* 2011; **13**: 726–30.

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