## Viewpoint

# Towards an educational praxis for planetary health: a call for transformative, inclusive, and integrative approaches for learning and relearning in the Anthropocene

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Fuelled by the intersecting challenges of climate change, biodiversity loss, pollution, and profound social, economic, and environmental injustices, calls for new ways to work together for a healthy, just, and sustainable future are burgeoning. Consequently, there is a growing imperative and mandate across the higher education space for transformative, inclusive, integrative—and sometimes disruptive—approaches to learning that strengthen our capacity to work towards the goals and imperatives of planetary health. This educational transformation requires attention to pathways of societal, policy, and system change, prioritising different voices and perspectives across jurisdictions, cultures, and learning contexts. This Viewpoint seeks to explore the developing areas of education for planetary health, while additionally reflecting on a praxis for education in the Anthropocene that is rooted within the confluence of diverse knowledges and practice legacies that have paved the way to learning and relearning for planetary health.

### Introduction

"The students will have an understanding and empathy that they will hold in their minds and hearts due to the spiritual and cultural teachings they are learning through the land. They will have a new lens."<sup>1</sup>

Joy Joseph-McCullough, Squamish Nation

Fuelled by the intersecting challenges of climate change, biodiversity loss, pollution, and profound social, economic, and environmental injustices, calls for new ways to work together for a healthy, just, and sustainable future are burgeoning. Meaningfully addressing these deep and interconnected issues is fundamentally a learning process. Society at large must move beyond existing patterns and constraints towards ways of thinking, being, and acting (eg, imagination, knowledge, and governance challenges) that restore, protect, and safeguard our shared planetary home and the living systems people depend on. Consequently, there is an increasing imperative and mandate across the education space (eg, for learners, educators, education institutions, and decision makers) for transformative, inclusive, integrative-and sometimes disruptive-approaches to learning that strengthen our capacity to work towards the goals and imperatives of planetary health. These goals require attention to pathways of societal, policy, and educational system change, prioritising different voices and perspectives across jurisdictions, cultures, and learning contexts.<sup>2</sup>

In 2021, the Planetary Health Education Framework was published with the aim to guide the education of students, practitioners, and professionals "able and willing to address the complex Planetary Health challenges of our world today".<sup>3</sup> The framework was meant to "inspire all peoples across the globe to create, restore, steward, and conserve healthy ecosystems for a thriving human civilization".<sup>3</sup> Although planetary health is often characterised as a distinct field of practice, the framework explicitly intended to build upon and acknowledge "previous scientific movements and fields such as conservation medicine, ecohealth, geohealth, and one health. It also recognised the invaluable contributions made by traditional and contemporary Indigenous knowledge systems, especially those that have long understood the interconnectedness between humans and Nature".<sup>3</sup>

The Planetary Health Education Framework considered five foundational domains that were thought to comprise the essence of planetary health knowledge, values, and practice with the goal of guiding institutions, educators, and learners (figure 1). The framework did not, however, explore processes of implementation due to the understanding that contextual variables such as the learning context would influence how the framework should and could be operationalised in practice. Despite this gap in implementation, there has been a renewed push from within and outside the planetary health community to begin an effort to further define potential routes of implementation for higher education learning contexts guided by the questions: how can the Planetary Health Education Framework be operationalised and how can inclusive communities of learning that recognise the invaluable contributions made by other traditional and contemporary systems of knowledge (eg, Indigenous knowledge systems) be created?

The answers to these questions are complex. For example, there has already been anecdotal feedback from individuals working within traditional academic spaces regarding the challenges of operationalising some of the concepts in the Planetary Health Education Framework, such as the exploration of the Interconnection within nature domain, which is central to the framework. The Interconnection within nature domain was purposefully centred in this framework (figure 1) with the firm notion that disconnection from nature is one of the fundamental root causes from which most anthropogenic environmental change stems.<sup>5-8</sup>





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**Figure 1: The Planetary Health Education Framework** Reproduced from Faerron Guzmán et al,<sup>4</sup> by permission of the authors.

The difficulty in operationalising the Interconnection within nature domain (figure 1) is just one example of the need for considering practical but transformative ways of delivering and developing curricula for planetary health education in higher education environments. This potential difficulty in operationalising key elements of the Planetary Health Education Framework also raises the question of whether the university-with its position as the enshrined institution of western thought and practice-as a concept and structure is equipped to reverse the disconnection from nature trend in educational settings and across the world? How can the current university system foster ways of learning that encourage humanity to live more harmoniously, doing each other no harm and, in so doing, foster cultures of care for ourselves, each other, all other species, and our shared planetary home? This Viewpoint seeks to explore these fundamental questions while additionally reflecting on a praxis for education in the Anthropocene.

Our positionality together as coauthors reflects viewpoints from different contexts, with origins that range from the Indigenous territories of Denendeh in the sub-Arctic (Canada, NR), central America (Costa Rica, CAFG), and Oceania in the south (Aotearoa New Zealand, MWP). Our collective work is also connected by shared experiences of crossing cultural, disciplinary, contextual, and experiential boundaries, in ways that cultivate recognition of the combination of integrative, inclusive, disruptive, and transformative approaches to learning that are required to address the goals and imperatives of planetary health.

Our Viewpoint explores the premise that any learning and relearning for planetary health requires a clear commitment to engage with and learn about connections as well as content. Learning and relearning for planetary health demands an understanding of and attention to the skills, perspectives, values, and capacities of all learners (those who are teaching and those who are learning) as well as a commitment to actively foster connections among learners and their wider context. Reflecting the nested and interconnected context of our planetary home, our view is that learners in the Anthropocene need to be actively supported in cultivating the nimbleness and commitment for: learning among and across people, places, and planetary contexts; navigating micro, meso, and macro scales; with internal, tangible, and external orientations; and while managing a dynamic flux between experiential, contextual, and relational connections. Figure 2 offers one entry point for this learning, highlighting patterns of interconnections that recur throughout our planetary home while expressing powerful relationships among the living systems people depend on.

Attention to the patterns of connection and interrelationship across the living world (figure 2) is, clearly, not new. The interconnectedness of the determinants of planetary health, for example, has been articulated, shown, and shared by global Indigenous knowledge holders and scholars based on thousands of years of collective knowledge.<sup>6,19</sup> Therefore, building on previous work, key and related learning principles and themes within this Viewpoint include the following three ideas. First, the recognition of our shared planetary home as an educational partner (further described in the section on lessons from Indigenous pedagogies). Humans are all interconnected and part of our shared planetary home; if we are to meet the challenges of our time we need to work together as an expression of this interconnected reality. Second, the nurturing of conceptual and practical understandings that we are part of greater interconnected living systems that we depend on (we vs I). This interconnectedness is linked to the notion of the web of connections that sustains all life, sometimes described as the web of life.20 The web of connections is also expressed in some Indigenous languages, such as the Māori concept of mauri, which "signals the life force or essence that derives from a common centre, binding us together".<sup>21</sup> Mauri is also described by Wilkinson and colleagues<sup>22</sup> as "an ethereal bond that links all elements of the natural world, the binding force between the physical and the metaphysical, the life-supporting capacity". Third, the support of Land-based personal experiences, meaning making, and the forming of relational mental models as a basis for transformative change.<sup>23-25</sup> A shift in mental models towards a more relational worldview is influenced by the connections we make, including fostering a sense of care, awe, reverence, and wonder, in relation to lifegiving connections across levels and systems.

# Challenging the perpetuation of dominance and disconnection in higher education

"The overarching paradigm of higher education upholds dominant ideologies of individualism and meritocracy, seeking to maintain oppressive hierarchies."<sup>26</sup>

To move towards a more relational, contextual, and experiential approach to education, the powerful defaults that are embedded in higher education must first be recognised. Dominant orthodoxies within institutions, both structural and ideological, must be challenged to reach a praxis in which the how, the what, the who, and the why of higher education converge in line with planetary health principles and practices. Institutions and practices that uphold patterns of harm to each other, and our shared planetary home, must be urgently confronted.<sup>27</sup>

Institutions of higher education have a privileged power position within societies. The fact that they do not exist or function in isolation from the social processes outside them must be recognised. Institutions of higher education both influence and are a product of wider societal systems. The boundaries between higher education institutions and societies at large have always been ill-defined, and hegemonic ideas have historically flowed bilaterally. Since their inception and until recently, higher education institutions were dominated by religious dogmas. During colonial periods, universities served to reify racism and colonial ideology.28 Higher education institutions were and are still predominantly directed by powerful actors and ideas. Nowadays, most higher education institutions are secular and no longer explicitly push outright racist ideologies. Even so, colonial patterns continue: racism is still very much present in educational institutions, and new forms of ideologies and dogmas (eg, geopolitical and economic) heavily influence the how, the what, the who, and the why of higher education.

According to authors such as Bhambra and colleagues<sup>29</sup> and de Sousa Santos,<sup>30</sup> higher education institutions work to mainstream and strengthen the prevailing matrixes of power and the status quo. This work can translate to formal institutional structures that decide what is worthy of being taught, and what is not (ie, the content or the what); the methods and means in the research and education process (ie, the process or the how); who is represented in higher education (ie, the learners and educators or the who); and the reasons and justifications for higher education (ie, the product or the why).

Of particular importance for reflection within this paper is how the prevailing ideas of disconnection from nature, starting from the colonial and neo-colonial expansion of western thought, and more recently stemming from the growthism ideology,<sup>31,32</sup> have dominated educational institutions globally. Therefore, current forms of western higher education, simultaneously benefiting from the logic of disconnection, have meant the loss of the knowledge systems and cosmovisions that have kept us





Global bird migrations (reproduced from United Nations Environment Programme and Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals,<sup>9</sup> by permission of the authors), watersheds of South America within the fractal (reproduced from Robert Szucs, Decolonial Atlas,<sup>10</sup> by permission of the authors), watersheds and river deltas (reproduced from the European Space Agency,<sup>11</sup> by permission of the authors), braided rivers (Te Awa Whakatipu/Dart River,<sup>12</sup> courtesy of the author), Nechako River within the fractal (reproduced from of the authors), trees and branches (Pohutukawa,<sup>14</sup> by permission of the author), cracks in ice (reproduced from Wikimedia,<sup>15</sup> by permission of the author), tree within the fractal (confluence and branches,<sup>16</sup> courtesy of the author), under (reproduced from Wikimedia,<sup>15</sup> by permission of the author), tree within the fractal (confluence and branches,<sup>16</sup> courtesy of the author), under (reproduced from Wikimedia<sup>17</sup>), and coronary arterial tree within the fractal,<sup>18</sup> reproduced from Grieze (stock.adobe.com).

bound to nature—creating a form of epistemic injustice. This logic of disconnection is also exemplified by the moral and intellectual perceived superiority of western thought that leads to exclusionary and hierarchical practices within higher education.<sup>29,33</sup> Despite some progress in incorporating diverse knowledge systems in higher education, power imbalances in the form of limited representation, harmful hierarchies of knowledge systems and voices, and unjust priority-setting processes remain prevalent.

The logic of disconnection from nature, coupled with dominant economic systems, has also separated higher education institutions from the core principle of education as a means of social transformation (ie, praxis for emancipation).<sup>34</sup> Higher education institutions now tend to adhere to the principle of employability through the transmission of factual knowledge and hard skills, as the core purpose of the learning process (table). This same logic puts the knowledge production process that happens within institutions of higher education in favour of the market economy<sup>36</sup> instead of towards the global

	What is the focus of the education process (the what)	What is the desired outcome from the education process (the why)	Who participates in the knowledge production, dissemination, and education process (the who)	Examples of methods (the how)
The Behaviourist University (informative)	Factual knowledge transmission and skills transfer	Placement in the workforce	Predominantly hegemonic and majority groups (learners and educators)	Entrusted professional activities and test- enhanced learning
The Constructivist University (formative)	Factual knowledge and contextualisation or construction and skills transfer	Placement in the workforce and personal change*	Predominantly hegemonic and majority groups (learners and educators); diversity might be valued, but not actively sought out	Problem-based learning and workplace-based learning
The Praxis University (transformative pluriversity)	Personal growth, critical analysis, and compassion	Personal change* and societal change	Diversity is valued and sought out in learners and educators; communities participate in the education process	Place-based learning, reflexivity, and praxis



Figure 3: A praxis for planetary health education in the Anthropocene

common good. With these realities in mind, we explore possible ways forward in the next sections.

# Transformative, inclusive, and integrative approaches to learning and relearning

If higher education is to contribute towards creating a "safe and just space for humanity",<sup>37</sup> it will require a reimagination of its structures and values in line with social and environmental justice and decolonising higher education movements. In the process of transformative change, higher education institutions must recognise and leverage their vantage point at the intersection of innovation, knowledge production and dissemination, community impact, and movement building to advance the planetary health agenda.<sup>38</sup> This transformative change is in keeping with parallel calls to progress a decolonial and relational vision of planetary health.<sup>27</sup>

To achieve transformation, we build here on the classic concept of praxis (ie, "reflection and action upon the world in order to transform it")<sup>34</sup> to produce an adjusted understanding of praxis that reflects our state of affairs within the Anthropocene. Our adjusted understanding is profoundly influenced by Indigenous knowledge systems, critical theory, and an ethics of care. We take quite literally the words of Paulo Freire who stated that "[e]ducation is thus constantly remade in the praxis. In order to be it must become".<sup>34</sup> We

therefore seek a vision of higher education becoming a reimagined way forward for transformation towards ecocentric, equitable, and healthy futures. We posit that the vision and interpretation of praxis for planetary health education in the Anthropocene consists of three reinforcing, reciprocal, and interconnected elements: compassion, knowledge, and reflection (figure 3). Together these elements make up the core process of any educational endeavour and seek to redefine the how, the what, the who, and the why of higher education (table). Although resonating with educational approaches that seek transformation by engaging the heart, head, and hands,<sup>39,40</sup> the form of praxis valued here and depicted in figure 3 also deepens interconnections within each iteration of practice. Figure 3 additionally highlights the power of learning through reciprocal exchange (also shown in figure 2), whereby learning involves iterative cycles of feeling, thinking, and doing, with an engaged action orientation that is relational, contextual, and experiential.<sup>41</sup>

In this praxis for planetary health education in the Anthropocene, compassion refers to the commitment, willingness to act, and engaged action for equitable change in the form of social and ecological justice. Long forgotten as a central aspect of the learning process, the element of compassion attempts to bring back relational, affective, and emotional aspects into the education process. Compassion recognises that learning and teaching stems from caring, a proclivity to become aware of need, and relationships of reciprocity (eg, from me to we and from disconnection to connection). Practised compassion builds on an ethics of care<sup>42</sup> and acknowledges the interconnectedness and interdependence between our species (in the past, in the now, and in the future) and all other elements of our biosphere.

The proposed praxis also centres around knowledge itself, seeking to restructure epistemic and cognitive frameworks that prevail in higher education while also moving from hierarchical practices to communities or

ecosystems of practice43 in knowledge mobilisation, translation, and exchange. Knowledge, as proposed in this praxis for planetary health education, means to actively seek and value the diverse contributions made by other traditional and contemporary systems of knowledge, as well as reversing historic epistemic injustices and harms.<sup>27</sup> Valuing the diverse contributions made by other traditional and contemporary systems of knowledge does not mean, however, disregarding the benefits of western epistemologies, but instead embracing plurality.44-47 It means that higher education institutions need to move from one way of knowing (ie, the Cartesian and Newtonian University) to a model of ecologies of knowledge (ie, the epistemically diverse pluriversity).48 This pluralistic orientation strengthens capacity to confront common environmental challenges in ways that are systemic, ecological, and equity informed. A pluralistic orientation is also consistent with overtly eco-social approaches to health,49,50 transdisciplinary movements inherent within the Planetary Health Education Framework and other spaces,351 and collective and regenerative leadership tenants that can be harnessed to fuel the transformative potential of education for planetary health.52-5

Finally, the element of reflection. Reflection is intended to fuel cycles of learning and change for those who engage with it, and, in keeping with Friere's<sup>34</sup> emphasis, reflection also sets a platform to enable direct actions towards transformation. Reflection should be understood as a means to reshape higher education through both the critical power analysis of institutions, knowledge, norms, policies, and practices, and also through relational care. The goal of critical power analysis through reflection is to enable institutions, learners, and educators to understand, revise, and assess positionality of self in terms of geographical, historical, cultural, and epistemological perspectives, and that of power structures that frame the teaching and learning experience. One goal of relational care fostered through reflection is to stimulate diverse knowledge integration in learners who might be used to only one way of thinking and being in the world (eg, conscious meaning making) and to expand what is possible through reciprocity, working together, and collective effort.40,41,56 Overall, reflection is central to the learning processes required to release humanity and our activities from the disconnection logics and anthropocentric ideologies that threaten the future of Earth's wellbeing (eg, moving from the anthropocentric to the ecocentric). These shifts benefit from reflection on the barriers and imperatives involved with ecological orientations to health and wellbeing.27,56,57

The convergence of these three elements, compassion– knowledge–reflection, translates to a form of emancipatory, decolonial, and resurgent practice that will better enable the formation of planetary stewards (we use the concept of planetary stewardship here put forward by 126 Nobel Prize laureates in their 2021 statement, *Our planet, our future. An urgent call to action*<sup>58</sup>). Planetary



Figure 4: Directionality towards planetary stewardship

stewards are by inclination movement builders, and they recognise the intertwined and interdependent reality of the societal and natural systems that surround us. Planetary stewards work towards social and environmental justice, seeking the necessary structural changes to support the achievement of global equity. They are compassionate and apply diverse knowledge systems in working towards solutions, moving their communities from despair, to hope, to action. We believe higher education has the potential to provide the conditions for the realisation of planetary stewards while accelerating transformational change. We further summarise this praxis for planetary health education in the Anthropocene and its intentions in figure 4.

The relational and interconnected emphasis embedded in the proposed praxis for planetary health education could also help to overcome one of the critiques of a planetary health education focus which, for some, can remain disconnected from the relational, contextual, and experiential considerations depicted in figure 2, and the ecocentric and inclusive orientations within figure 4. One potential pathway to deepening the relational aspects of the planetary focus is to cultivate the capacity, discipline, and skills needed for zooming in and zooming out to experience the different perspectives and orientations within nested sets of relationships.<sup>59</sup>



Figure 5: Patterns of nested interconnections within our planetary home that inform a praxis of learning focused on relationships and interactions among and across scales and perspectives



Figure 6: A praxis for planetary health education in the Anthropocene informed by patterns of nested interconnections and relationships within our planetary home

Fostering fluency with grasping planetary health interconnections across micro, meso, macro, and meta level experiences (figure 5) is an important part of cultivating a relational praxis, and a necessary step to overcoming the ethical, conceptual, and methodological issues of working across scales.<sup>21,60</sup> Acknowledging and honouring our shared planetary home (ie, Mother Earth, Papatuakuku, or Pacha mama) as a whole, needs to be connected with tangible, highly contextual lived experiences nested within the living ecosystems people depend on, in specific eco-social places, settings, and communities.<sup>61</sup>

For more on the **Dechinta Centre for Research and Learning** see https://www. dechinta.ca/

Connecting with the elements of planetary health in the higher education space therefore needs to be connected to personal, experiential, and internal processes of health that can be seen as embedded or nested within other relationships (figure 6). Learning about our immediate living systems in terms of dynamics of care and compassion, and the planet as a foundation for our health and home (as compared with the disconnecting emphasis on hazards and harm alone), is another essential component in connecting the planetary level with the personal.<sup>24,25,62,63</sup> Supporting the process of learning to see and move between and across various nested levels (figures 2, 5, 6) encourages humility, as well as the understanding that humans are just one small part of a universal story of living systems. The learning and relearning for planetary health therefore needs to prioritise tangible experiences that enable people to feel, think, and personally have dynamic, reciprocal relationships from the individual to the collective, to the planetary level.

### Lessons from Indigenous pedagogies

"Indigenous land-based education is...a form of understanding our place within, and our responsibility to, the wider universe."<sup>1</sup>

#### Alex Wilson, Opaskwayak Cree Nation

Land or Country<sup>64</sup> is stated to be an active participant in the learning process.65 Yet Eurocentric educational processes have often embodied a sense of one-directional exchange between teacher and learner whereby knowledge is imparted onto a learner who then needs to make sense of the information in the required context. This learning is static, ahistorical, non-participatory, and non-relational. Stating that Land or Country is an active participant in the learning process, means that knowledge is reciprocal and lived in relation to something outside of ourselves. It also means that human-to-human exchange or experience is not the only way to learn or embody teachings. Knowledge transmission is instead dynamic, contextual, participatory, and relational. Indigenous Nations for millennia have had diverse Landbased and relational pedagogies that have been expressed through modern scholarship, teaching, and learning.66

"Land is seen as the source of all Indigenous knowledge, it is both teacher and pedagogy holding all Indigenous truths."<sup>67</sup>

Indigenous Land-based education has been at the forefront of embodying the Interconnection within nature attribute (figure 1) through experiential and relational learning that is not bound by scales of influence. Indigenous Land-based education has been examined and reflected as a conduit for transformative learning with the potential to weave Indigenous knowledges and academic knowledge to encourage shifts in understanding.<sup>68</sup> Dechinta Centre for Research and Learning based in sub-

Arctic Canada, for example, delivers accredited postsecondary courses entirely on-the-land, co-developed with Indigenous Elders, community leaders, and leading Indigenous academics.<sup>69</sup> With a priority on reconnection, skill-building, knowledge and practice with the land, being together on the land, learning with the land, and having strong relationships with the land, Dechinta's approach is the embodiment of planetary health without being explicitly labelled as such-like many Indigenous run programmes. Dechinta is but one of many developed and established Land-based pedagogy sites of learning that could inspire and inform more practical understandings of the Interconnection within nature portion of the Planetary Health Education Framework, including expanding the view on what education for planetary health actually looks like in practice.70,71

## Paradigm shifts

The state of the globe's converging crises clearly demands swift and just educational reform, within which planetary health education is poised to make an important contribution. However, we consider that higher education institutions, for the most part, lack the necessary tools, frameworks, and possibly the will to deconstruct and reconstruct their own structures. For example, connecting with land, air, and water (eg, ecosystems, living systems, and Mother Earth) in relation to our own wellbeing6 could be seen to actively threaten existing knowledge power dynamics and pathways of expertise found in higher education. Without crucial introspection and analysis of the intersectional matrices of power dynamics at play within the knowledge production, dissemination, and education process, higher education institutions and the structures they represent could continue to lack the capacity to steer our world towards transformative change-through a comprehensive shift in how human beings interact with each other and nature.72 The way forward requires paradigm shifts26,35 that include structural reforms in how knowledge is produced and disseminated, how education is democratised, and how education becomes both a process and outcome that progresses towards care-informed social and environmental justice.

We recognise that previous efforts at tackling learning and relearning in academic spaces have often been fraught with challenges. We identify pattern recognition as a useful tool for leveraging compassion–knowledge–reflection praxes within traditional siloed spaces through communitycentred planning while continually asking and reflecting on: what have we learned from past efforts? Where do the levers of change lie? How do we re-surface existing ideas in ways that underscore the synergies and connections between existing efforts? How can synthesis and resynthesis be useful to guide the next cycles of effort? How do we harness opportunity from the increasing attention to planetary health? Fortunately, many of the papers in this planetary health education issue offer some additional tangible and established examples of approaches for real-time planning and implementation in moving a planetary health educational agenda forward.<sup>40,41,70,73–77</sup>

Indigenous Peoples have also been highlighted in this Viewpoint for their deep understanding in practice of the Interconnection within nature element, which informs all aspects of our planetary health education praxis. Therefore, with the collective examples referenced in this paper, and in thinking through the necessary synthesis of our ways of being in the world, relationships, and processes, we reflect deeply on the profound personal, professional, collective, and spiritual influences in the realm of planetary health thought and practice that we have seen and experienced. The planetary health alignment with several (often overlooked or marginalised) aspects of disciplinary thought, spanning from human ecology to ecosystem approaches to health, to wider, established terrains of environmental justice, equityinformed health promotion, contemplative traditions, participatory action research, and Indigenous knowledges are still largely unappreciated. Understanding from our perspective that education for planetary health is really about honouring where we come from and where our knowledge has come from, as well as appreciating the confluences of these diverse lineages and legacies is incredibly important as we deepen our commitment to learning and relearning for planetary health.

"Land-based is one of those words, it's a beautiful, wonderful term. It is bringing people back to the land and helping them become alive and remembering their humanity and their connection to all living things. We are the land. So, if we remember who we are, then the same miracle that we see all around us, will be us."<sup>65</sup>

#### Contributors

All authors contributed to the conceptualisation, methodology, data curation, drafting of the original paper, and reviewing and editing of the final version.

#### Declaration of interests

We declare no competing interests.

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