



Planetary Health Report Card:

Pharmacy

The University of Auckland



2023-24 Contributing Team:

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Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as, “a solutions-oriented, transdisciplinary field and social movement focused on analysing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth” [1]. This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanisation, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change “the single biggest health threat facing humanity” [2] many pharmacy schools’ institutional priorities do not reflect the urgency of this danger to human health. Fossil-fuelled electricity and gas and medical or pharmaceutical products used in healthcare account for around 8% of the total global greenhouse gas footprint of healthcare [3] with pharmaceutical waste also providing a dangerous contaminant to our water systems [4]. Metered dose inhalers contribute 500g CO₂eq per dose [5], whilst air pollution causes 7 million deaths per year worldwide and exacerbates chronic respiratory disease [6]. Pharmacy therefore has a direct and detrimental impact on planetary health and this contradiction in patient care must be addressed and actioned.

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients’ health. This preparation is in the hands of the institutions providing our pharmacy training. It is imperative that we empower those who are educating pharmacy students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats, and hold those who are not accountable. Because climate change and environmental threats disproportionately affect vulnerable populations [7] (for example, communities of colour, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and providing recommendations and opportunities for improvement among pharmacy schools, we have created a Planetary Health Report Card that pharmacy students internationally can use to grade and compare their institutions on an annual basis. This pharmacy-student-driven initiative aims to compare pharmacy schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) planetary health research, 3) university support for student planetary health initiatives, 4) community outreach centred on environmental health impacts, and 5) pharmacy school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* as “a solutions-oriented, transdisciplinary field and social movement focused on analysing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth” [1]. For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of pharmacy school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Education for Sustainable Healthcare (ESH):** is defined as “the *process of equipping current and future health professionals with the knowledge, values, confidence and capacity to provide environmentally sustainable services through health professions education. We define a health professional as a person who has gained a professional qualification for work in the health system, whether in healthcare delivery, public health or a management or supporting role and education as ‘the system comprising structures, curricula, faculty and activities contributing to a learning process’* [8]. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge about planetary health is required to fully understand the necessity of sustainable healthcare. It is also part of the broader knowledge needed to fully protect and promote health.
- **Pharmacy School vs. Institution:** When “pharmacy school” is specified in the report card, this only refers to the curriculum and resources offered by the school of pharmacy and does not include offerings from other parts of the university (for example, undergraduate departments [USA], other related departments e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more broadly. Any resource reasonably accessible by pharmacy students, no matter where in the institution the resource comes from or if it is specifically targeted for pharmacy students, can meet this metric.
- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the

institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.

Summary of Findings

Overall	C
<u>Curriculum</u>	D
<p>The BPharm curriculum prepares students for real-life clinical settings and essential knowledge on climate change impacts. There is coverage of topics such as antimicrobial resistance and inequities caused by climate change, but more topics could be added. For example, effects of pharmaceutical manufacturing related toxins and the environmental impact of dosage forms, medication delivery devices, and/or excipients. In addition, there are concepts such as polypharmacy and respiratory dosage forms that are already taught without mentioning the impact on climate change. This could be remedied without making structural changes to the curriculum by explicitly discussing climate change wherever appropriate.</p>	
<u>Planetary Health Research</u>	B-
<p>There are staff members researching aspects of planetary health, but there is little connection between the wider community and the challenges they face due to deteriorating planetary health. Thus, research being conducted may not be pertinent to the most pressing concerns of those living through the crisis of poor planetary health.</p>	
<u>Community Outreach and Advocacy</u>	D
<p>There would be benefits to the School of Pharmacy connecting with the local community about planetary health. In addition, the School could consider joining planetary health or Environment, Safety and Health (ESH) organisations, such as Planetary Health Alliance, to obtain and provide a more global perspective of planetary health impacts to students and staff.</p>	
<u>Support for Student-Led Initiatives</u>	C-
<p>A plethora of opportunities to engage and learn about climate change are offered by student organisations at the University. The School of Pharmacy could liaise with staff and students involved in central University initiatives to increase awareness and expand opportunities available to pharmacy students. This may result in more research projects involving planetary health being offered to and driven by pharmacy students. There is also room for some groups to highlight how health professionals work alongside community leaders to overcome challenges.</p>	
<u>Campus Sustainability</u>	B+
<p>The University of Auckland has an ambitious goal to be carbon neutral by 2030. This includes divestment from fossil fuels and several sustainability networks and initiatives. However, there has been little direct involvement from the School of Pharmacy in this initiative as of yet. Thus, a plan should be drafted</p>	

within the School of Pharmacy to maximise its contribution to the University's carbon neutral aspirations. Whilst paper is still used for some teaching activities, electronic formats are increasingly preferred. The School has largely moved to online electronic resources for coursework, but examinations for courses remain largely paper-based. It is recommended that the School consider moving to online examination formats.

Planetary Health Curriculum

Section Overview: *This section evaluates the integration of planetary health topics into the pharmacy school curriculum. Today's pharmacy students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that pharmacy students understand planetary health issues and principles.*

1. Does your pharmacy school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<p><i>Score explanation:</i> The score of two is given as the relationship between the impacts of climate change induced extreme weather is covered in lecture 12 in the infectious diseases module, “infectious diseases and climate change”. In slide 5 a logical and comprehensive relationship is established between the climate and its effects on both health systems and individual health outcomes. This notion is further developed in the lecture with discussion of the detrimental socio-economic and health effects of neglected tropical diseases and how these are exacerbated due to climate change.</p>	

2. Does your pharmacy school curriculum address the environmental impact of medicines in terms of their pollution, ecological impact and contamination of water systems?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.

0	This topic is not covered.
<p><i>Score explanation:</i></p> <p>In the course Pharmacy 213, there is facilitated class discussion surrounding the pollution induced by the production and usage of medicines. There is a debate at the end of this workshop wondering who should be responsible for the waste. However, this remains to be covered in depth in course curricula. As for Ecological impact, in lecture “ Covid and Antimicrobial resistance” Slide 61 briefly outlines the relationship between water contamination and antimicrobial resistance. The ecological effects are soon mentioned on the same slide, describing the effects of water contamination leading to antimicrobial resistance in bacterial populations which are then transferred to humans. However beyond the lens of antimicrobial resistance the effects of medicine pollution are not covered. Thus a score of 2 is given.</p>	

3. Does your pharmacy school curriculum address the health effects of pharmaceutical industry- and manufacturing-related environmental toxins?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<p><i>Score explanation:</i></p> <p>This not covered in the curriculum and thus a score of 0 is given</p>	

4. Does your pharmacy school curriculum address the carbon footprint of healthcare systems?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<p><i>Score explanation:</i></p>	

In Pharmacy 213 and Pharmacy 212 laboratory sessions students are reminded to be mindful of the waste produced by single use plastics, medicines and extemporaneously compounded products. This is including but not limited to the packaging of the original medicines prior to compounding as well as the packaging waste of said compounded medicines. However the explicit effects of the carbon footprint are left to be interpreted and so a score of 0 is awarded.

5. Does your pharmacy school curriculum address the impact of climate change on the changing patterns of infectious diseases and increased antimicrobial resistance?

3	These topics are explored in depth by the core curriculum.
2	These topics are briefly covered in the core curriculum.
1	These topics are covered in elective coursework.
0	These topics are not covered.

Score explanation:

In lecture 10 of the infectious disease module, named “ climate change and infectious diseases” the impacts of climate change and infectious disease patterns are discussed in detail, with a mechanistic explanation being provided. Antimicrobial resistance is also covered in detail in the lecture “Covid and Antimicrobial resistance.” The lecture makes specific reference to the effects of climate change on the respective discovery and retention of new and current antibiotics. Furthermore, the contents of these lectures were directly assessed in the End of module test. Thus a score of 3 has been awarded

6. Does your pharmacy school curriculum address the respiratory health effects of climate change and air pollution?

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation:

There are plans to incorporate the effects of climate change and air pollution on respiratory illness in the 2024 academic year.

The 2024 curriculum will also highlight the bi-directional relationship in which respiratory medicine wastes also exacerbate climate change and environmental burden. This follows from the finding of the Global Initiative for Asthma report for 2023.

However as said content was not taught in the 2023 academic year the score awarded is a 0.

https://ginasthma.org/wp-content/uploads/2023/07/GINA-2023-Full-report-23_07_06-WMS.pdf

7. Does your pharmacy school curriculum address the cardiovascular health effects of climate change, including increased heat?

3 This topic is explored in depth by the core curriculum.

2 This topic is briefly covered in the core curriculum.

1 This topic is covered in elective coursework.

0 This topic is not covered.

Score explanation:

This is not currently taught and thus a score of 0 has been allocated.

8. Does your pharmacy school curriculum address the relationship between climate change and allergies?

3 This topic is explored in depth by the core curriculum.

2 This topic is briefly covered in the core curriculum.

1 This topic is covered in elective coursework.

0 This topic is not covered.

Score explanation:

Not currently covered but there are plans to incorporate this into the curriculum in 2024.

9. Does your pharmacy school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?

3 This topic is explored in depth by the core curriculum.

2 This topic is briefly covered in the core curriculum.

1	This topic is covered in elective coursework.
0	This topic is not covered.
<i>Score explanation:</i> Not currently covered. Hence a score of 0 is given.	

10. Does your pharmacy school curriculum address the unequal regional health impacts of climate change nationally and globally, including the impact of social inequality?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic was not covered.
<i>Score explanation:</i> In Pharmacy 213, lecture “infectious diseases and climate change, the relationship between the social determinants of health such as vulnerability factors, exposure pathways and health systems capability/ resilience and climate change is shown. The downstream effects on both patients and existing infrastructure caused by climate change induced variation in the social determinants is also illustrated. However since this is only a single slide, which lacks complexity the relationship the score of 2 is assigned.	

11. Does your pharmacy school curriculum address the relationship between climate change and social determinants of health (e.g., reduced nutritional value of food)?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<i>Score explanation:</i> Not currently covered. Hence a score of 0 is given.	

12. Does your pharmacy school curriculum address the environmental and health co-benefits of a plant-based diet?

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic was not covered.

Score explanation:

Not currently covered. Hence a score of 0 is given.

13. Does your pharmacy school curriculum cover these components of sustainable clinical practice? (1 point each)

1	Waste production within the healthcare system and strategies for reducing waste in clinical activities such as single use plastic and packaging.
1	Patient counselling on safe disposal of medications. For example, what can be disposed of and how to locate recycling schemes, in addition to certain drugs or drug classes that are most important to dispose of properly (e.g. hormonal contraceptives, drugs that are excreted unchanged/active metabolites).
1	The impact of extreme heat, on patients on medications which can interfere with thermoregulation
1	The impact of anaesthetic gases on the healthcare carbon footprint.
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively, teaching on de-prescribing where clinically appropriate and its environmental and health co-benefits would fulfil this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The impact and benefits of benign by design pharmaceuticals through exploring medicinal chemistry concepts and/or discussing implications of excretion of active metabolites/unchanged drug products on ecological systems

Score explanation:

The impacts and benefits of certain pharmaceutical designs were discussed as part of our “Dosage form design 1” and “Dosage form design 2” lectures in Pharmacy 212. However, the benefits these dosage forms had on the environment, such as their rapid biodegradability, were not often discussed in the context of ecological benefit but instead needed to be inferred. Although, as it was covered in a sense, it has been highlighted. Safe disposal of medications is discussed as part of the C&P module, and the importance of passing this information on to patients has also been covered; thus, it has been highlighted. Finally, the endocrine module also covered the environmental and health co-benefits of non-pharmaceutical management of certain conditions. Thus, this has also been highlighted. Overall, this section has received a score of three.

Other metrics have not been highlighted as there is no evidence of them having been covered or explicitly mentioned as part of lectures, labs, workshops, or readings in the pharmacy curriculum. Therefore, these metrics have received scores of zero. However, it is still important to note that de-prescribing and health benefits have been discussed, but as there was no link to the environmental benefits of this action, it has not been highlighted.

14. Does your pharmacy school curriculum discuss the environmental implications of various dosage forms, medication delivery devices, and/or excipients?

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation:

While the benefits of dosage forms, excipients, and medicine delivery methods are discussed in the core curriculum, only a few of these touch on pro-climate properties (such as rapid biodegradability) and, in most cases, there is rarely an explicit mention that this is beneficial for the environment. Although mentioned in the curriculum, students must individually interpret the environmental relevance. Hence, a score of 0 has been given.

15. In training for patient communication, does your pharmacy school’s curriculum introduce strategies for having conversations with patients about the health effects of climate change?

3	Yes, there are clear and detailed strategies introduced for having conversations with patients about climate change in the core curriculum.
2	Yes, having conversations with patients about climate change is briefly mentioned in the core curriculum.
1	Yes, there are some examples of having conversations with patients about climate change in elective coursework.
0	No, there are not strategies or examples for having conversations with patients about climate change

Score explanation:

As part of the second-year curriculum, the conversations had with patients are typically focused on relaying information regarding the appropriate use of medicines with little touch on environmental impacts. However, in the dermatology module, students are taught to inform patients of the risk for photosensitivity reactions due to UV exposure when taking certain medications. Counselling points in this module also included the importance of using sunscreen to minimise UV effects. Unfortunately, there is no explicit mention of higher UV being linked to climate change. Due to the lack of guidance around stating how higher UV is an effect of climate change and relaying this information to the patient, a score of zero has been given.

16. Does your pharmacy school curriculum guide students to consider the environmental impact of medications as a factor in addition to safety, efficacy, cost, and pill burden when comparing equivalent therapies?

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation:

Impacts on the climate are not currently discussed when choosing a medicine for dispensing. Instead, students are encouraged to pick based on safety, efficacy, and cost, especially if one brand of medicine is funded while another is not, as this is seen as more pertinent to the patient. Thus, if a drug that is better for the environment is not funded but a not-so-beneficial drug is, the latter will always be chosen in preference with little consideration of the positive aspects of the former. For this reason, a score of zero has been given.

17. Is your pharmacy school currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?

4	Yes, the school is currently in the process of making major improvements to ESH/planetary health education.
2	Yes, the school is currently in the process of making minor improvements to ESH/planetary health education.
0	No, there are no improvements to planetary health education in progress.

Score explanation:

In 2023, lectures about the impacts of medicine use on health were introduced into the curriculum to increase student awareness of these topics. Some of the changes implemented during the year included an introductory lecture on environmental sustainability, a debate based on the moot ‘Should pharmaceutical companies be responsible for the waste their products produce?’, and a lecture on how climate change impacts the prevalence of infectious diseases.

The staff of the School of Pharmacy also had a retreat at the end of 2023 focused on environmental sustainability. During this retreat, methods of incorporating climate change education into the curriculum were discussed. Some examples of these future additions are the environmental impacts of asthma inhalers, allergies and climate change, and the effects of deprescribing on the environment. The first two are planned to be part of Pharmacy 311, and the latter will be part of Pharmacy 702. As can be seen, while only a small change was made in 2023, there is action being undertaken for larger improvements to the curriculum regarding environmental sustainability. For this, a score of four has been given.

18. Does your pharmacy school have a member of faculty to incorporate planetary health and sustainable healthcare as a theme throughout the curriculum?

4	Yes, there is/are a member(s) of faculty whose role is directly responsible for the incorporation of planetary health and sustainable healthcare as a theme throughout the curriculum
2	Yes, there is/are member(s) of faculty who are incorporating planetary health and sustainable healthcare as a theme throughout the curriculum as well as doing their principle role

0	There are no members of faculty who are incorporating planetary health and sustainable healthcare as a theme throughout the curriculum
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Score explanation:

While some faculty members are incorporating planetary health and sustainable healthcare into their lectures or the modules they lead, this is not a heavy focus throughout the curriculum. Thus, some considerations of climate and environmental impact are explored in certain modules, such as “Infectious diseases and climate change” in our Infectious Diseases module and in our climate change debate as part of our Clinical and Pharmacy Practice module. However, in other modules, there is very little. Due to this, there is some evidence of dedicated staff members providing education on climate impacts within the curriculum, but it is currently limited to particular modules where they are more heavily involved. For this reason, a score of two has been given.

19. Does your pharmacy school curriculum offer clinical practice experiences (for example, IPPE/APPE rotations in the U.S. or placement opportunities in the UK) that allow for the exploration of planetary health topics?

3	There are multiple clinical practice experiences/placements that allow for direct exposure to planetary health topics.
2	There is one available clinical practice experience/placement that allows for direct exposure to planetary health topics.
1	There are available clinical practice experiences/placements that allow for indirect exposure to planetary health topics.
0	No, there are no such clinical practice experiences/placements available through the pharmacy school.

Score explanation:

The second-year curriculum allows students to attend one day of placement in an industry setting, three days in a hospital setting, and three days in a community setting. During these placements, there is not a strong focus on the environmental aspect of pharmacy practice but there is some discussion of these topics. This includes talking about how certain production processes are optimised to minimise environmental impact and looking at safe disposal of medicines, preventing the introduction of infectious substances into environments that it should not be a part of. This helps to reduce the climate impact of medicines use and production, but as this is not a primary focus of the placements we are given the opportunity to attend, a score of one has been given.

20. Does your pharmacy school curriculum acknowledge a disparity in the effects of climate change? Specifically, does your curriculum address groups more vulnerable to environmental impacts, such as BIPOC, immigrant groups, low income populations, children, elderly, persons with disabilities, persons with pre-existing or chronic medical conditions?

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation:

As part of our Pharmacy 212 course, students take part in a ‘Discussion about Poverty’ workshop wherein there is an examination of the inequities in outcomes between those who live in poverty and those who do not. As part of this, students can look into the impact of climate change on these outcomes, but there is no requirement to do so. Due to this, a score of two has been given as students must participate in the workshop and may become exposed to the impact of climate on disparity, but the exposure depends on what they look into.

Section Total (21 out of 66)

31.82%

Planetary Health Research

Section Overview: *This section evaluates the quality and quantity of planetary health research at the school and with the broader institution. Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. Pharmacy schools should support research in areas such as the health effects of climate change, adaptive measures and pharmacy's environmental impact.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your pharmacy school?	
3	Yes, there are faculty members at the School of Pharmacy who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Pharmacy who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the pharmacy school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or pharmacy school at this time.
<p><i>Score explanation:</i></p> <p>Within the School of Pharmacy, some faculty members are conducting research in areas related to planetary health and the environment. However, for many of these staff members, environmental health is not the primary focus of their research, and there is no dedicated member looking into this topic. Due to this, a <u>score of two</u> has been given as some individuals are researching in this field but not as their main area of focus.</p>	

2. Has your institution recently provided extra curricular talks or learning opportunities on topics related to planetary health?	
4	Yes, the pharmacy school has hosted at least one opportunity for extra learning on topics related to planetary health in the past year.
3	Yes, the institution has hosted at least one opportunity for extra learning on topics related to planetary health in the past year.

2	Yes, the institution has provided at least one opportunity for extra learning on topics related to planetary health in the past three years.
1	The institution has not hosted anything directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted anything on topics related to planetary health in the past three years.

Score explanation:

To our knowledge, no dedicated event related to planetary health has been hosted by the School of Pharmacy for students in the past three years. However, there was a staff retreat held at the end of 2023 focused on environmental sustainability. Here, methods of incorporating climate change into the curriculum was discussed and as a result of this, action is being undertaken to improve the curriculum. A University-wide Sustainability Teaching Network also exists where staff members across the university are invited to attend and learn how various courses are incorporating environmental sustainability into their curricula, furthering education in this area.

Therefore, as there are opportunities for extra learning on planetary-health related topics with movement towards teaching about environmental sustainability within both the School and the wider University, a score of four has been given.

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your pharmacy school?

3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.

Score explanation:

There are no processes by which those disproportionately impacted by climate change can have a say in the research conducted by the School of Pharmacy unless they themselves are part of the team. For this reason, a score of zero has been given.

Section Total (6 out of 10)

60.00%

Community Outreach and Advocacy

Section Overview: *This section evaluates pharmacy school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of colour. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.*

1. Does your pharmacy school partner with community organisations to promote planetary and environmental health?	
3	Yes, the pharmacy school partners with multiple community organisations to promote planetary and environmental health to share opportunities for student involvement.
2	Yes, the pharmacy school partners with one community organisation to promote planetary and environmental health to share opportunities for student involvement.
1	The institution partners with community organisations, but the pharmacy school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>Score explanation:</i></p> <p>The University of Auckland has members involved in researching topics related to planetary health, allowing for a better understanding of this field. However, this is only on an institutional level wherein the University supports those it believes are carrying out relevant projects. While the School of Pharmacy may benefit from this, there is no dedicated funding stream from the School to other organisations, only from the institution. For this reason, a <u>score of one</u> has been given.</p>	

2. Does your pharmacy school have coverage of issues related to planetary health and/or sustainable healthcare in their update communications?	
2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.

0	Students do not regularly receive communications about planetary health or sustainable healthcare.
<p><i>Score explanation:</i></p> <p>The official University of Auckland website has a dedicated news and opinion thread with a “sustainable impact” subthread. On this page, sustainable healthcare topics and planetary health are sometimes included and thus a score of 1 has been given.</p> <p>Sustainable impact - The University of Auckland</p>	

3. Is your pharmacy school a member of a national or international planetary health or ESH organisation?	
1	Yes, the school is a member of a national or international planetary health or ESH organisation
0	No, the school is not a member of such an organisation
<p><i>Score explanation:</i></p> <p>It is not part of international planetary health or Environment, Sustainability and Health (ESH) organisation</p> <p>Planetary Health Alliance - an introduction to the field of planetary health</p>	

Section Total (2 out of 6)	33.33%
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Support for Student-Led Planetary Health Initiatives

Section Overview: This section evaluates institutional support for student-led planetary health initiatives, such as funding, fellowships, programming, and student groups. Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover mentors in their area of interest, and receive funding for planetary health projects.

1. Does your institution offer opportunities for pharmacy students to do research related to planetary health and/or sustainable healthcare?	
2	The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare but these require student initiative to seek these out and carry them out in their spare time.
0	There are no opportunities for students to engage in planetary health/sustainable healthcare research.
<p><i>Score explanation:</i></p> <p>The University of Auckland does provide research opportunities for students related to health/sustainable healthcare during summer breaks or within university times but the students would have to reach out to the professor or the summer research fellowship programme first and be chosen to participate in these research. Due to this reason, a <u>score of 1</u> was given. Furthermore, there is no guarantee that projects will be relevant to sustainability, this is dependent on staff offering such projects.</p> <p>Summer research projects - The University of Auckland</p>	

2. Does the pharmacy school provide access for students to specific information related to planetary health and/or sustainable healthcare activities and mentors within the school? For example, a web page detailing projects achieved, current initiatives underway at the pharmacy school and/or contact information for potential mentors.	
2	The pharmacy school provides specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.

1	The pharmacy school provides some information on projects and mentors within planetary health and sustainable healthcare within the school, but it lacks key information.
0	There is no pharmacy school specific access to planetary health and/or sustainable healthcare projects or mentors.

Score explanation:

Despite having a sustainability team, initiatives are conducted with a University wide approach, rather than a faculty specific one. Following from this, there is nothing specific to the school of pharmacy. Furthermore, there are no established mentee or mentor pathways nor is there any specific research information. Hence, a score of 0 is given.

3. Does your University have registered student groups dedicated to fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?

2	Yes, there is a student organisation with faculty support at my University dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organisation at my University dedicated to planetary health or sustainability in healthcare but it lacks faculty support.
0	No, there is not a student organisation at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation:

Sustainable Future Collective is a student-led multidisciplinary club in University of Auckland that promotes climate change awareness and facilitates education relevant to systemic changes needed to combat the climate crisis, this is including but not limited to climate change in a healthcare context. Thus a score of 2 has been awarded.

[Sustainable Future Collective - Engage](#)

4. In the past year, has the institution had one or more extra-curricular planetary health programs or initiatives in the following categories? (1 point each)

1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
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1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)

Score explanation:

Wilderness or outdoor programs at our institution have featured wellness walks and picnics in 2023. Wellness walks involved pharmacy staff, lecturers, professors, and students from various academic years. The primary objective of these walks was to foster friendship among students and staff while allowing participants to enjoy and appreciate the natural surroundings. In the early months of 2023, Auckland Pharmacy Student Association had also organised a picnic in the park. During this event, pharmacy students brought their own food to the park, engaging in games and fostering connections with members from different year groups. This gathering not only offered a valuable opportunity for bonding but also encouraged an appreciation for sustainable practices in connection with nature.

The University of Auckland volunteering club is a free society which facilitates a plethora of philanthropic extra-curricular activities for students. A number of these excursions involve tree planting and restoration of parks and environmental settings. Thus the group aids local and rural communities in promoting resilience in the face of anthropogenic environmental impacts.

[Help restore Waiheke's beautiful wetlands - The University of Auckland](#)
[UOA Volunteers](#)

Section Total (5 out of 12)	41.67%
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Campus Sustainability

Section Overview: This section evaluates the support and engagement in sustainability initiatives by the pharmacy school and/or institution. The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavour, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinising every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our pharmacy schools and institutions must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimising environmental impact.

1. Does your University have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the pharmacy school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of pharmacy.
1	There are no salaried sustainability staff, but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p><i>Score explanation:</i></p> <p>Across the entire university, the sustainability office is dedicated to implementing carbon reduction plans and sustainability initiatives throughout the University's estate and operations. Sustainability contacts - The University of Auckland</p> <p>Moreover, the University of Auckland features a sustainability hub that focuses on integrating sustainability strategies into teaching and research efforts.</p> <p>Within the pharmacy school there is a designated Sustainability Lead, who collaborates with the pharmacy team to ensure the incorporation of initiatives into the curriculum.</p>	

2. How ambitious is your pharmacy school/institution's plan to reduce its own carbon footprint?

4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the pharmacy school has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the pharmacy school has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.

Score explanation:

The University of Auckland has set a clear vision of achieving carbon neutrality by 2030, supported by a short-term strategic plan for 2025 to ensure alignment with this goal. This plan not only recognizes the challenges posed by contemporary concerns but also serves as a current articulation of the university's purpose, vision, and values.

[Taumata Teitei - Vision 2030 and Strategic Plan 2025 | The University of Auckland](#)

Additionally, the university undergoes external verification and audits of its annual greenhouse gas emissions inventories, providing transparency in showcasing the path it is following. However, it is important to note that this comprehensive approach is applied at the university-wide level and not specifically within the pharmacy school, resulting in a score of 2.

[Reducing carbon emissions - The University of Auckland](#)

3. Does your pharmacy school have an organics recycling program (compost) and a conventional recycling program (aluminium/paper/plastic/glass)?

2	Yes, the pharmacy school has both compost and recycling programs accessible to students and faculty.
1	The pharmacy school has either recycling or compost programs accessible to students and faculty, but not both.
0	There is no compost or recycling program at the pharmacy school.

Score explanation:

General rubbish, paper and can recycling bins are provided all around the faculty for students, staff and visitors to use. But there are no compost programmes/bins thus was given a score of 1.

4. Does your pharmacy school provide paperless teaching? e.g. lecture materials, exam papers, hand-outs

3	The whole course is delivered using online modalities of assignment, lecture, and examination delivery.
2	The majority of the course is delivered using online modalities with exception to few assignments where paper is still encouraged.
1	Some of the course is delivered using online modalities, but the majority of assignments and examinations are on paper.
0	None of the coursework is delivered using online modalities and paper printing is widespread.

Score explanation:

The course is delivered mainly online or in person. Lectures are delivered in person or via recording and the materials are delivered mostly via Canvas page. The assignments are also given via Canvas and the students also submit it through the same webpage as well. But despite the effort to achieve paperless teaching, there are still some exceptions to paperwork such as labs and tests/exams therefore a score of 2 is given.

<https://learningessentials.auckland.ac.nz/learning-at-university/technology/canvas-for-students/>

5. Does your pharmacy school have programs and initiatives to assist with making lab spaces more environmentally sustainable?

2	Yes, the school has programs and initiatives to assist with making lab spaces more environmentally sustainable.
1	There are guidelines on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are no efforts at the school to make lab spaces more sustainable.

Score explanation:

Initiatives include reusing resources such as ointment pots, tablets and bottles during compounding classes and using outdated medicines for dispensing and other OSCE stations/exams. We also prevent pharmaceutical ingredients from our compounding classes from entering the waste water supply by reducing the quantities/volumes of products compounded and disposing of all of the compounded products into bags that go into the pharmaceutical waste stream. This year we are also manufacturing our own tablets containing

no active ingredients to reduce the quantity of medicines going into the pharmaceutical waste stream to reduce the environmental impact of our compounding classes.

6. Does your institution have a strategy or timeline for divestment from fossil fuels?

4	The institution has fully divested from fossil fuels
3	Yes, the institution has solid divestment plans and a set timeline in which to divest by
2	The institution has committed to divestment but does not have a set strategy or timeline
1	The institution has mentioned divestment but doesn't have a strategy or timeline
0	No, there are no plans nor mention of divestment from fossil fuels

Score explanation:

The University of Auckland has remained committed to creating an investment portfolio which remains mindful of its impacts. The university investments follow a responsible investing policy which dictates, "The Foundation will not invest in funds that invest in companies that derive any revenue from fossil fuel reserves, illegal or nuclear weapons, or the manufacture of tobacco products."

[Responsible Investment Policy Statement | The University of Auckland Foundation](#)

Thus a 2022 report finds that investment in fossil fuel reserves has been effectively eliminated from the portfolio. As such, only 0.008% of the foundation's investments were held in companies deriving revenue from fossil fuel reserves. Therefore a score of 4 has been awarded.

[The University of Auckland Annual Report to Donors](#)

Section Total (14 out of 18)

77.78%

Grading

Section Overview: This section focuses on the grading of the report card. The institution received a grade for each of the individual sections as well as an overall institutional grade. Section point totals were tallied, divided by the total points available for the section, and converted to a percentage. The overall institutional grade is a weighted average of the section grades, with curriculum receiving a higher weight owing to its larger number of metrics. Letter grades for each section and the institution overall were then assigned according to the table below.

Letter Grade*	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%
D	20% - 39%
F	0% - 19%

Planetary Health Grades for the University of Auckland School of Pharmacy

The following table presents the individual section grades and overall institutional grade for the University of Auckland School of Pharmacy on this pharmacy-school-specific Planetary Health Report Card.

Section	Raw Score	Letter Grade
Planetary Health Curriculum (59%)	$(21 / 66) \times 100 = 31.82\%$	D
Planetary Health Research (9%)	$(6 / 10) \times 100 = 60.00\%$	B-
Community Outreach and Advocacy (5%)	$(2 / 6) \times 100 = 33.33\%$	D
Support for Student-led Planetary Health Initiatives (11%)	$(5 / 12) \times 100 = 41.67\%$	C-
Campus Sustainability (16%)	$(14 / 18) \times 100 = 77.78\%$	B+
<u>Institutional Grade</u>	$(32 \times 0.59) + (60 \times 0.09) + (33 \times 0.05) + (42 \times 0.11) + (78 \times 0.16) = 43.03\%$	C

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