APRIL 2022

# PLANETARY HEALTH REPORT CARD

## *PHARMACY PILOT*

### 2021-2022 SUMMARY REPORT
### PHARMACY SCHOOL INITIATIVE

*Prepared by:*
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# ABOUT THE INITIATIVE

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 seven 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 adapted the Planetary Health Report Card to pharmacy which students internationally can use to grade and compare their institutions on an annual basis.

# GOALS

- Assess the current level of planetary health and sustainability consideration and inclusion within pharmacy school education and wider institutions, using the metrics as a ‘needs assessment’ tool.
- Encourage examples of planetary health and sustainability engagement and highlight opportunities for growth.
- Build upon the international, interprofessional, and interinstitutional learning on planetary health and sustainable health care initiated by medical schools.
- Progress the global planetary health movement.

# SECTIONS OF THE REPORT CARD

The PHRC utilises metrics in 5 distinct areas to highlight planetary health inclusion and consideration within the pharmacy school and wider institution. This allows for comparison of pharmacy schools internationally.

## Planetary Health Curriculum

This section evaluates the integration of planetary health topics into the pharmacy school curriculum. Pharmacists will be on the frontlines of tackling and treating the health effects of climate and other environmental changes. Therefore, it is critical that pharmacy students understand planetary health issues and learn how to practice sustainably and reduce the environmental impact of medicines and devices.

## Planetary Health Research

This section evaluates the quality and quantity of planetary health research at the pharmacy school and with the wider institution. Planetary health is an emerging field. To facilitate appropriate teaching on planetary health, pharmacy schools should support research in areas such as the health effects of climate change, adaptive measures and pharmacy's environmental impact.

## Community Outreach and Advocacy

This section evaluates pharmacy school engagement in community outreach and advocacy efforts associated with planetary health. Climate change disproportionately impacts under-resourced populations and communities of colour, therefore, it is critical that pharmacy schools and their institutions directly engage with communities most affected by environmental health harms and provide opportunities for student involvement.

## Support for Student-Led Planetary Health Initiatives

This section evaluates institutional support for student-led planetary health initiatives such as quality improvement and information sharing. Students are the future of the work force and shape the future of the pharmacy profession therefore, it is vital they are supported in engagement with emerging fields in healthcare such as planetary health.

## Campus Sustainability

This section evaluates the support and engagement in sustainability by the pharmacy school and/or institution, considering aspects including carbon footprint and waste management. Our pharmacy schools and institutions must set the standard for sustainable practices and minimising environmental impact.

# METRICS

## PLANETARY HEALTH CURRICULUM

*This section evaluates the integration of planetary health topics into the pharmacy school curriculum. Pharmacists will be on the frontlines of tackling and treating the health effects of climate and other environmental changes. Therefore, it is critical that pharmacy students understand planetary health issues and learn how to practice sustainably and reduce the environmental impact of medicines and devices.*

**1.1** Does your pharmacy school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?

**1.2** Does your pharmacy school curriculum address the environmental impact of medicines in terms of their pollution, ecological impact and contamination of water systems?

**1.3** Does your pharmacy school curriculum address the health effects of the pharmaceutical industry- and manufacturing-related environmental toxins?

**1.4** Does your pharmacy school curriculum address the carbon footprint of healthcare systems?

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

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

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

**1.8** Does your pharmacy school curriculum address the relationship between climate change and allergies?

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

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

**1.10** Does your pharmacy school curriculum address the unequal regional health impacts of climate change nationally and globally, including the impact of social inequality?

**1.11** Does your pharmacy school curriculum address the relationship between climate change and social determinants of health (e.g., reduced nutritional value of food)?

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

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

- Waste production within the healthcare system and strategies for reducing waste in clinical activities such as single-use plastic and packaging.
- 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).
- The impact of extreme heat, on patients on medications which can interfere with thermoregulation.
- The impact of anaesthetic gases on the healthcare carbon footprint.
- 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.
- The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes.
- 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

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

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

**1.15** 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?

**1.16** 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?

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

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

**1.19** 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?

**1.20** 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?

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

## PLANETARY HEALTH RESEARCH

*This section evaluates the quality and quantity of planetary health research at the pharmacy school and with the wider institution. Planetary health is an emerging field. To facilitate appropriate teaching on planetary health, pharmacy schools should support research in areas such as the health effects of climate change, adaptive measures and pharmacy's environmental impact.*

**2.1** Are there researchers engaged in planetary health research and healthcare sustainability research at your pharmacy school?

**2.2** Has your institution recently provided extra curricular talks or learning opportunities on topics related to planetary health?

**2.3** 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?

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

## COMMUNITY OUTREACH AND ADVOCACY

*This section evaluates pharmacy school engagement in community outreach and advocacy efforts associated with planetary health. Climate change disproportionately impacts under-resourced populations and communities of colour, therefore, it is critical that pharmacy schools and their institutions directly engage with communities most affected by environmental health harms and provide opportunities for student involvement.*

**3.1** Does your pharmacy school partner with community organisations to promote planetary and environmental health?

**3.2** Does your pharmacy school have coverage of issues related to planetary health and/or sustainable healthcare in their update communications?

**3.3** Is your pharmacy school a member of a national or international planetary health or ESH organisation?

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

## SUPPORT FOR STUDENT-LED PLANETARY HEALTH INITIATIVES

*This section evaluates institutional support for student-led planetary health initiatives such as quality improvement and information sharing. Students are the future of the work force and shape the future of the pharmacy profession therefore, it is vital they are supported in engagement with emerging fields in healthcare such as planetary health.*

**4.1** Does your institution offer opportunities for pharmacy students to do research related to planetary health and/or sustainable healthcare?

**4.2** 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.

**4.3** 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?

**4.4** 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)

- 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.
- Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
- 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.
- Cultural arts events, installations, or performances related to planetary health that have students as an intended audience.
- Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
- Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students)

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

# METRICS

## CAMPUS SUSTAINABILITY

*This section evaluates the support and engagement in sustainability by the pharmacy school and/or institution, considering aspects including carbon footprint and waste management. Our pharmacy schools and institutions must set the standard for sustainable practices and minimising environmental impact.*

**5.1** Does your University have an Office of Sustainability?

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

**5.3** Does your pharmacy school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?

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

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

*For more detailed information on metric scoring, please visit our website at phreportcard.org.*

2021-2022 Summary Report
**North America: United States**

# Planetary Health Report Card For Pharmacy

| | Overall | Planetary Health Curriculum | Planetary Health Research | Community Outreach and Advocacy | Support for Student-led Initiatives | Campus Sustainability |
|---|---|---|---|---|---|---|
| **University of Montana, Skaggs School of Pharmacy** | **B-** | C+ | B- | B | A- | C+ |
| **University of Charleston School of Pharmacy** | **C** | C | B- | C | B | D |
| **Virginia Commonwealth University School of Pharmacy** | **D** | F | B | F | C | C |

*80-100% = **A**, 60-79% = **B**, 40-59% = **C**, 20-39% = **D**, 0-19% = **F***
*Scores within top or bottom 5% awarded + or -, respectively*

# RECOMMENDATIONS

Based on the information compiled in these school-specific planetary health report cards, we present the following recommendations:

### 1a. Link Planetary Health to Clinical Teaching

The pharmacy curriculum is extremely full. As opposed to creating new courses or classes, approaching clinical teaching with planetary health as a common theme throughout the core curriculum will allow sustainability to be ingrained in pharmacy professional practice in the same way as person centered care or antimicrobial stewardship.

#### *Examples*

*At the University of Montana, the COPD learning module in the Therapeutics course specifically highlights indoor and outdoor air pollution as possible causes of COPD, citing information from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) pocket guideline. It also lists environmental factors, such as air pollution, as possible exacerbation triggers. In the same course, air pollution is listed as a cause for asthma.*

*The "Pharmacists and the Environment" lecture from the Strategies for Positive Health Outcomes core course at the University of Charleston discusses the relationship between climate change and an increasing prevalence of respiratory allergies and allergy attacks through increasing allergens and air pollution. Populations more vulnerable to this change are listed.*

### 1b. Link Planetary Health to Clinical Teaching Using Case Studies

Patient case studies in the curriculum provide a useful route to include planetary health considerations, therefore better facilitating the learning on planetary health.

#### *Examples*

*At the University of Montana, the Human Health and Climate Change elective course devotes one lecture to Climate Change and Health Communication. Strategies for discussing the "whys," "whos," "whats," "whens," and "hows" of climate change are shared and applied to a patient case.*

# RECOMMENDATIONS

## 2a. Include Teaching on Waste Management in the Curriculum

Understanding pharmaceutical waste management is vital to reducing the environmental damage caused by pharmacy manufacture, provision and disposal of medicines. Waste management should also be considered in school laboratories, where hazardous materials, energy usage, and single use plastics contribute to the negative impact healthcare has on the environment. Patient waste includes vials, devices, active metabolites or unchanged drug, and more. Regulated medical waste and hazardous waste in the health system should also be discussed.

### *Examples*

*The Pharmacy Ethics lecture at the University of Montana discusses the environmental impact of the pharmaceutical life cycle (development, production, distribution, prescribing, disposal). This topic is also covered in the Human Health and Climate Change elective course and in the Planetary Health Virtual Exchange. Specifically, the Hyderabad Pollution Crisis, waste products created by each step of the drug manufacturing process, the shift of generic drug manufacturing to China and India in the early 2000s, and the subsequent issues of minimal regulation, oversight, and transparency are taught. These topics are also discussed through the lens of growing antimicrobial resistance.*

## 2b. Improve Laboratory Waste Management and Sustainability

Waste management and sustainable laboratories are integral to sustainable pharmacy service provision and should be addressed in the core curriculum. Additionally, campuses should make efforts to make experiential labs more environmentally sustainable.

### *Examples*

*The University of Montana has a Hazardous Waste Collection Program. Used lab chemicals that are safe to reuse are distributed to other labs. Universal wastes such as batteries and fluorescent lamps are recycled. Departments are encouraged to purchase only the amount of chemicals necessary.*

# RECOMMENDATIONS

### 3. Facilitate Inter-professional and Interdisciplinary Collaboration

As health care professionals, we work as part of a multidisciplinary team. Facilitating shared learning through elective courses, conferences and talks by experts in planetary health and attending events/initiatives hosted by the wider institution, will provide better care for our patients and reduce the impact of health care on the environment. Environmental efforts require a multifaceted, collaborative approach to ensure support for and progression of initiatives.

***Examples***

*At the University of Montana, the Climate Change and Human Health course and the Planetary Health Virtual Exchange focus on ESH and planetary health education and are available to all students on campus. Primarily, health professions students, including pharmacy, public health, and nursing students enrol in this elective course. Prior to this, exposure to ESH and planetary health was limited to one lecture in the core curriculum in Pharmacy Ethics. The new courses have improved access to ESH/planetary health education in a major way.*

### 4. Support Student-Led Organizations and Information Sharing

The student voice is a powerful tool for change as demonstrated by the PHRC in medical schools. Supporting student-led organizations, encourages enthusiasm and innovation in planetary health. Students develop leadership, team-building skills, and essential organisational qualities that will prepare them for a dynamic career in pharmacy. The School should recognize and amplify voices of students that catalyse positive action in climate and patient health efforts.

***Examples***

*The Sustainable Pharmacy Project (SPP) is the first organisation to gain recognition for bringing sustainability awareness in pharmacy in the US. It is a student-created organization, founded at Virginia Commonwealth University School of Pharmacy. SPP aims to educate future and current healthcare providers on the environmental impact of pharmaceuticals to encourage positive change for climate action and improve patient outcomes. The group often collaborates with students and clinicians from a variety of settings, as well as local community organizations. SPP collaborates with local organizations, such as Keep Virginia Cozy and Virginia Clinicians for Climate Action.*

# RECOMMENDATIONS

## 5. Include Teaching on Climate Change and Social Inequality in the Curriculum

Social inequality is inextricably linked to health inequality. Climate change exacerbates the existing burden of disease for vulnerable populations. Teaching on the social and environmental determinants of health must be included in the core curriculum to provide the knowledge and tools with which to overcome these barriers for our patients. It is known that populations most affected by poor climate are also most vulnerable to health disparities. Therefore, treating the patient is our utmost duty and that requires taking into consideration our patient's environment.

### *Examples*

*At the University of Charleston, the relationship between climate change and social determinants of health is addressed in a lecture presented in the Strategies for Positive Health Outcomes core course. It is also alluded to in the "Pharmacists and the Environment" lecture from the same course, when the relationship between climate change and malnutrition via impacts on water and food supply is discussed. This lecture acknowledges groups more vulnerable to the effects of climate change. These include POC, individuals of low socioeconomic status, children, elderly, and disabled.*

*At the Virginia Commonwealth University School of Pharmacy, a geriatric pharmacy elective course discusses the impact of redlining and other environmentally inequitable practices on the development of food deserts and lack of green space.*

## 6. Provide Community Outreach and Advocacy Opportunities

We, as health professionals, are trusted members of our communities and well placed to advocate for their needs. Pharmacy students must have opportunities to work with local communities affected by climate change and to raise awareness as part of the pharmacy course, elective courses, or be able to access initiatives provided by the wider institution. The school's presence must be in symbiosis with its immediate community members.

### *Examples*

*The PEAS farm is the University of Montana's campus and community farm where students and interns across many programs of study grow produce for the community and Food Bank. Additionally, the Student Health Professionals for Healthy Climate organisation is partnering with Soil Cycle, a local composting organisation, for a tour and volunteer day.*

*The University of Charleston School of Pharmacy regularly collaborates with park authorities and city officials from Charleston, Beckley, and Alum Creek, WV to participate in park and neighbourhood clean-up events. In 2019, one event involved sending 27 pharmacy students, faculty, and staff to clean up the Haddad RiverFront Park.*

# RECOMMENDATIONS

## 7. Include Teaching on Disaster Preparedness in the Curriculum

Our planet is unequivocally in crisis. We, as pharmacy professionals, must be equipped to provide care to our patients in the face of extreme weather events and natural disasters resulting from climate change. Therefore, it is imperative that we are made aware of such risks to global health and provided with the knowledge to adequately care for ourselves and our patients through these events as part of the core curriculum.

### *Examples*

*The University of Montana has one lecture covering the concept of Disaster Ethics, which highlights concepts such as resource stewardship and rationing care. It also has a Public Health lecture on pharmacy disaster preparedness, which illustrates the impact Superstorm Sandy had on pharmacy operations. In the Human Health and Climate Change elective course, there is one lecture focused on extreme weather, natural disasters, and disaster preparedness, which includes topics such as wildfires and landslides. Heat waves are discussed in detail in another lecture, specifically in terms of health impacts for special populations (e.g. paediatrics). Pharmacy Ethics features two case studies for students to evaluate and discuss from ethical standpoints: one is related to wildfires in Montana and the other a destructive cyclone in India.*

## 8. Fund Faculty in Planetary Health

Providing teaching on planetary health and sustainability, requires research to be carried out to underpin such knowledge. Therefore, pharmacy schools and wider institutions must provide support and funding for planetary health research and sustainable healthcare research, as well as and faculty members who partake in such research and efforts. Faculty serve as a gateway to new knowledge and opportunities for students therefore, it is important they are well versed in planetary health changes.

### *Examples*

*Two notable faculty members are Hayley Blackburn, PharmD, BCACP, BC-ADM, an Assistant Professor in the Department of Pharmacy Practice at the University of Montana and Alice Gahbauer, PharmD, BCACP, an Associate Professor in the Department of Pharmacy Practice at the University of Charleston. Both are environmental pharmacy champions at their respective universities and have been diligently working to incorporate planetary health topics into their schools' curricula. They do this in addition to their primary teaching, mentoring, committee, and clinical practice responsibilities.*

*The University of Montana Skaggs SOP offers opportunities for students to perform research related to planetary health while completing their APPEs, as long as it is arranged ahead of time with a faculty mentor who is versed in these issues such as Dr. Hayley Blackburn (i.e. Research APPE).*

# SCHOOL-SPECIFIC REPORT CARDS

2021-2022 Summary Report
USA

# University of Charleston School of Pharmacy

## Overall — C

## Planetary Health Curriculum — C

- One lecture available in one core course for first-year students comprehensively addresses various planetary health topics. Some planetary health considerations are mentioned very briefly in other lectures for other core and elective courses, but these discussions are mostly limited to just one bullet point or one slide in one lecture in the course.
- The UCSOP curriculum could be improved with respect to planetary health education by ensuring that these topics are covered in more courses and woven throughout courses offered across all three didactic years.

## Planetary Health Research — B-

- The UCSOP has one faculty member whose research areas of interest include planetary health education and healthcare sustainability. The research that this individual has done has contributed to the development of this Planetary Health Report Card for Pharmacy initiative, as well as the integration of planetary health topics into the UCSOP curriculum.
- The planetary health research conducted by members of the UCSOP would benefit from the creation of a process by which individuals more vulnerable to the effects of climate change and environmental injustice give input on the research agenda at the SOP.

## Community Outreach and Advocacy — C

- Partnerships with local community organizations are highly commended.
- Developing regular communication regarding planetary health issues and enrolling in a planetary health organization would be beneficial.

## Support for Student-led Planetary Health Initiatives — B

- Faculty support for student-led initiatives is abundant in terms of sustainable healthcare research and the creation and implementation of environmentally focused activities, such as hiking.
- The development of an environmental or public health track at the UCSOP might help students more easily propose and partake in planetary health or sustainable healthcare research. The development of a website to keep the community aware of sustainability projects, current initiatives, and planetary health news would be an easy way to inspire individuals to join the movement.

## Campus Sustainability — D

- While UC does have a recycling program, campus sustainability could be increased through the creation of an Office of Sustainability, formal plans to reduce its own carbon footprint, and/or plans to make labs more environmentally sustainable.

2021-2022 Summary Report
USA

# University of Montana Skaggs School of Pharmacy

## Overall

B-

## Planetary Health Curriculum

C+

- The Skaggs School of Pharmacy includes planetary health in the curriculum in the P3 Pharmacy Ethics course, but it lacks integration in the rest of the curriculum. In first and second year, various concepts related to planetary health are discussed in lectures (e.g. plant-based diets, social determinants of health, social inequality and inequity, increasing rates of allergies and asthma, and pharmaceutical manufacturing processes) but the term is never defined or used. These concepts are presented in isolation of their downstream effects, be it positive or negative in relation to planetary health. There is also a lack of teaching about introducing conversations about planetary health and/or climate anxiety into conversations with patients.

## Planetary Health Research

B-

- Christopher Migliaccio, PharmD, PhD also conducts research within the Department of Biomedical and Pharmaceutical Sciences (BMED) to understand the unprecedented exposure the local population of Seeley Lake, Montana had during the record-breaking wildfire season of 2017. His lab is following these exposures to learn about the effects of wildfire smoke exposure on incidence of respiratory disorders in this population. Pharmacy students get direct exposure to his work during Pharmacy Practice P1 year.

## Community Outreach and Advocacy

B

- The University of Montana's legacy of partnership with many nonprofits and tribal partners over many years has laid a strong foundation for the school of pharmacy to expand and promote their own partnerships. The pharmacy school has taken up this mantle recently through the offering of the Human Health and Climate Change and Planetary Health COIL electives. These courses expose students to multiple community organizations (Climate Smart Missoula, Montana Health Professionals for a Healthy Climate, and Families for a Livable Climate, among others), providing a strong network student involvement

## Support for Student-led Planetary Health Initiatives

A-

- The University of Montana supports student groups with efforts focused on climate change and planetary health issues. The Climate Response Club (CRC) and the Student Health Professionals for Healthy Climate (SHPHC) are the two organizations most directly involved with this work. Both organizations are officially recognized by the Associated Students of the University of Montana (ASUM, our student government body), receive funding from ASUM, and work closely with faculty members. In addition, ASUM Sustainability serves as a resource for students to promote, develop, and implement sustainability and climate change education efforts.

## Campus Sustainability

C+

- The University of Montana  Office of Sustainability's first several years they made significant strides toward making UM a more sustainable campus by aiming efforts at carbon neutrality, solid waste reduction, recycling, sustainability literacy, and student engagement. They utilize a holistic scoring tool known as the Sustainability, Tracking, Assessment, and Rating System (STARS) to track their progress on a yearly basis. Unfortunately, the University fell short of its initial ambitious goal of carbon neutrality by 2020 due to "external circumstances" including the erection of new buildings, fluctuating staff and student census, and the energy portfolio of their utility provider, Northwestern Energy.

2021-2022 Summary Report
USA

# Virginia Commonwealth University School of Pharmacy

## Overall — D

## Planetary Health Curriculum — F

- Planetary health topics are rarely covered in the curriculum. In instances where they are mentioned, they are only briefly mentioned without any depth into the impact of planetary health or patient care and not testable learning material. The school offers no elective courses focused on planetary health. There is, however, an independent study options throughout the years where students may research a subject of their choice with the support of a faculty member.

## Planetary Health Research — B

- While there are research projects that have potential to discuss impacts on planetary health measures, planetary health is not a priority or focus of any of the research.
- The School does not make an effort to amplify planetary health learning opportunities that are led by organizations within the School or at the greater institution
- There is room for growth in developing partnerships with the greater Richmond community, especially those disproportionately impacted by climate change and environmental injustice.

## Community Outreach and Advocacy — F

- Student-led organisations of the School are motivated to partner with community organisations to promote planetary health, though there is limited advertising and communication about such events from the School to increase participation.

## Support for Student-led Planetary Health Initiatives — C

- The School offers flexible opportunities for students to create research projects with faculty. Majority of the current projects do not include planetary health to any degree and it is unclear whether the School offers such projects.
- The greater VCU institution has access to extra-curricular planetary health programs; however, these events are not communicated to the School's student body. Sustainable Pharmacy Project, a student-led organization, is the source of planetary health information at the School.

## Campus Sustainability — C

- There are efforts to increase campus sustainability at the institution, but there is a lack of medical campus involvement/representation resulting in a lag in the promotion of these interventions at the school of pharmacy. The school utilizes paperless assignments and the facilities house recycling receptacles – though the reliability of the recycling procedure itself is questionable. The school of pharmacy building is LEED certified.

# LIMITATIONS & FUTURE DIRECTIONS

The 2021-2022 Planetary Health Report Card for Pharmacy Pilot is an adaptation of the PHRC in medical schools. Despite our extensive efforts in creating our pilot, we recognise that there are some limitations, as outlined below. Following the discussion of our limitations, we outline future directions for the PHRC for Pharmacy and pharmacy training.

## LIMITATIONS

### LIMITED REPRESENTATION OF SCHOOLS

Although ten teams from various pharmacy programs expressed interest in this pilot, factors such as short turnaround times (3 weeks) and lack of awareness about the initiative resulted in a smaller sample size than planned. While we celebrate the contributions of the participating teams, we acknowledge that the data presented in this report likely does not represent the attitudes and approaches to planetary health taken by all pharmacy schools globally nor throughout the United States, where all participating teams reside.

### DISCREPANCIES IN INTERPRETATION

There is a degree of subjectivity in the evaluation process using the metrics that varies between teams. What one team may classify as “brief coverage,” another may rank as “in depth coverage,” thus potentially skewing each teams’ overall grades. We tried to eliminate this subjectivity as much as possible by providing examples and their grades in the appendix, but due to availability of relevant information, examples were not provided for every metric.

### UNDERSTANDING OF PURPOSE

The lack of understanding about the goals of the PHRC initiative from some pharmacy programs and larger institutions was a major barrier during this pilot. This had a wide range of effects, from withdrawal from the pilot to completing the report without faculty assistance.

# FUTURE DIRECTION OF THE PHARMACY PHRC

## INCREASE GLOBAL REACH

We plan on increasing the number of participating schools and colleges of pharmacy in order to provide a wider snapshot of planetary health topics in pharmacy programs and expand our impact across the globe. This can be done through formal collaboration with professional pharmacy organisations and student associations. We will also ensure adequate time is provided to thoughtfully and thoroughly complete the report cards.

## CLARIFYING HOW TO REPORT ON METRICS

Given the novelty of this initiative and incorporation of climate and health in pharmacy, it is understandable that there was confusion on what qualifies a score. Providing examples and their corresponding grades in a separate appendix document may not have been the most optimal way to provide instruction. We plan on making this guidance more evident in future reports either by merging the report card and the appendix or by stating under each metric and by working to make examples of scores more relatable to pharmacy.

## INCREASED FACULTY INVOLVEMENT

We would be happy to create a packet of informational resources covering topics such as a description of the PHRC initiative, how others can access its findings, and a copy of the pilot report for reference. This would hopefully increase understanding and therefore support from faculty members, pharmacy programs, and institutions at large.

# FUTURE DIRECTION OF PHARMACY TRAINING

## ELECTIVE COURSES

Creating elective courses dedicated to planetary health and sustainable healthcare would allow pharmacy students to discuss the wide-ranging effects of pharmacy on the environment to the fullest extent.

## EXTRACURRICULAR ACTIVITIES

Pharmacy programs could consider providing extracurricular learning opportunities, such as panels featuring experts in planetary health or members of community organisations.

## CAMPUS SUSTAINABILITY

Pharmacy programs and their associated institutions could form committees responsible for the creation and implementation of plans intended to make campuses more sustainable. It would be beneficial for these committees to have at least one representative from the pharmacy school or college.

## COMMUNICATION

Creating an avenue by which pharmacy faculty and students are made aware of planetary health events, initiatives, and updates would ensure that environmental pharmacy remains on readers' radars and motivate readers to take action when possible. Such avenues could include websites, recurring newsletters, or social media posts.

## SUPPORT AND RESEARCH

The creation of formal planetary health or sustainable healthcare research programs or tracks would increase opportunities for students and faculty to partake in such research. This would require support and funding from institutions.

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