

Sustainability in action: Einstein health system initiatives for promoting planetary health

Sustentabilidade em ação: iniciativas do sistema de saúde Einstein na promoção da saúde planetária

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ABSTRACT | Introduction: Hospital Israelita Albert Einstein has distinguished itself through various innovative and impactful sustainability initiatives aligned with the principles of planetary health. **Objective:** To present institutional actions and experiences aimed at generating knowledge and raising awareness about the benefits of integrating health and sustainability. The initiatives also seek to reduce the environmental impact of health care operations (e.g., waste management and greenhouse gas emissions) and to strengthen and train teams for effective responses to climate emergencies. **Methods:** Descriptive case report, categorized into education and research, health care operations, and climate emergency response. **Results:** Educational and knowledge-generation activities on nature and health have been conducted for diverse audiences, with scientific dissemination reaching over one million people. In operations, the institution achieved a 92% reduction in general waste sent to landfills. Replacing nitrous oxide use prevented the emission of 4,114 tons of carbon dioxide equivalent. In addition, self-production of renewable energy will cover 60% of the institution's energy consumption. More than two thousand health care services were provided in response to climate emergencies during the catastrophe in Rio Grande do Sul. **Conclusion:** Integrating planetary health into institutional health care policies is essential to addressing global environmental challenges. These initiatives show how health care institutions can follow sustainable, innovative practices aligned with the sustainable development goals, promoting positive impacts at local, community, national, and global levels.

Keywords | Planetary health; health services; climate change.

RESUMO | Introdução: O Hospital Israelita Albert Einstein, em suas diversas frentes de atuação, tem se destacado por iniciativas inovadoras e impactantes na área da sustentabilidade, alinhadas à saúde planetária. **Objetivo:** Apresentar ações e experiências institucionais voltadas à geração de conhecimento e à conscientização sobre os benefícios da integração entre saúde e sustentabilidade, à redução dos impactos ambientais associados às operações de saúde, como o manejo de resíduos e as emissões de gases de efeito estufa, bem como ao fortalecimento e à capacitação de equipes para atuarem de forma eficaz em emergências climáticas. **Métodos:** Relato de caso descritivo, categorizado em ensino e pesquisa, operações de saúde e resposta a emergências climáticas. **Resultados:** A geração de conhecimento e a formação sobre natureza e saúde para diversos públicos têm sido realizadas, com divulgação científica já alcançando mais de um milhão de pessoas. Na operação, houve redução de 92% no envio de resíduos comuns a aterros sanitários, enquanto a substituição do uso de óxido nitroso evitou a emissão de 4.114 toneladas de dióxido de carbono equivalente. Além disso, com a autoprodução de energia renovável, serão atendidos 60% do consumo energético institucional. Mais de dois mil atendimentos foram realizados em emergências climáticas durante a catástrofe no Rio Grande do Sul. **Conclusão:** A integração da saúde planetária às políticas institucionais no setor da saúde é essencial para enfrentar os desafios ambientais globais. As iniciativas apresentadas exemplificam como as instituições de saúde podem incorporar práticas sustentáveis e inovadoras, alinhadas aos Objetivos de Desenvolvimento Sustentável, promovendo impactos positivos nas esferas local, comunitária, nacional e global.

Palavras-chave | Saúde planetária; serviços de saúde; mudanças climáticas.

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Introduction

Advancements in global health — such as increased average life expectancy at birth and reduced infant mortality — have been accompanied by unprecedented exploitation of the planet's resources. Examples include rising carbon dioxide (CO₂) emissions, overfishing, ocean acidification, growing consumption of water and energy, increased use of fertilizers, and deforestation, among other environmentally harmful practices that tend to exacerbate one another in a vicious cycle (1).

The global community has also warned that the continued degradation of the planet's natural systems — biodiversity loss and the deterioration of air, water, and soil quality — due to climate change poses an imminent threat to human survival, as it undermines the basic life-support systems on which humanity depends (2).

Mitigating the effects and risks associated with climate change is therefore inherently linked to human action. Protecting human health requires preserving the health of the planet.

Planetary health refers to achieving the highest possible standard of health, well-being, and equity by considering the human systems — political, economic, and social — that shape the future of humanity, along with Earth's natural systems and its biodiversity. The concept promotes an increasingly integrative, transdisciplinary, and global approach to sustainability and human life on Earth (3), recognizing that the planetary crisis transcends geopolitical boundaries and academic disciplines and affects all of humanity (1).

This article aims to describe the main initiatives of Hospital Israelita Albert Einstein, which has distinguished itself through

innovative and impactful sustainability efforts aligned with the promotion of planetary health. It also seeks to show how these initiatives can inspire other institutions to align their practices with contemporary global challenges, thereby contributing to climate change mitigation and the preservation of the natural systems essential to health and well-being.

Methods

This descriptive case report presents the initiatives, experiences, and perspectives of Einstein in the field of planetary health. Information was gathered from institutional documents, analysis of sustainability indicators, education and research data, and both qualitative and quantitative data from specific actions. The initiatives were thematically organized and categorized into 1) education and research; 2) health care operations; and 3) climate emergency response. These categories were defined based on their relevance to the principles of planetary health and their alignment with the sustainable development goals (SDGs).

Since this is an analysis of institutional practices that does not involve human subject research, the study is exempt from ethics committee review, in accordance with current regulations (4).

Results and discussion

Education and research

Initiatives related to sustainability and planetary health in the areas of education and research are summarized in Chart 1.

The research group e-Natureza: Estudos Interdisciplinares sobre Clima, Conexão com

a Natureza, Saúde, Bem-estar e Conservação da Biodiversidade (e-Nature: Interdisciplinary Studies on Climate, Connection with Nature, Health, Well-being, and Biodiversity Conservation) generates knowledge related to planetary health, with a focus on nature-based interventions, climate change, and indigenous knowledge (5–11). These projects are grounded in the interdependence between humans and the environment, viewed as a fundamental element for supporting therapeutic interventions, strategies, and public policies that promote collective well-being and ensure the preservation of resources for future generations.

Within this context, the group also developed a theoretical model based on complex adaptive systems, analyzing the dynamic interactions between interconnected elements to support nature-based interventions. This approach aims to generate mutual benefits for both human health and biodiversity conservation (12).

Scientific reasoning is essential for addressing current and future sustainability challenges. The Cientistas do Amanhã

(Scientists of Tomorrow) project is based on immersive science education for adolescents from the Paraisópolis community in São Paulo. Conducted annually over a four-month period, the initiative aims to popularize science through theoretical and practical research activities, reduce stereotypes about science, and promote understanding of the social, political, and ethical roles of science in society (14). One of the activities in the program combines classroom instruction with nature-based experiences (Figure 1), culminating in all participants being recognized as “Embaixadores e-Natureza” (e-Nature Ambassadors). This approach promotes learning about the importance of connecting with nature and its benefits for health and well-being, raises awareness of the challenges and solutions related to climate change, and encourages participants to actively share this knowledge within their local communities.

The integration of science and sustainability has provided an enriching experience and demonstrates the impact of scientific

Chart 1. Educational and research initiatives related to planetary health

Description	Activities
Initiatives focused on training and capacity building in nature and health, climate change, scientific knowledge generation, and dissemination.	Conducting interdisciplinary studies on the connection between nature, health, well-being, biodiversity, and climate change (5–11).
	Establishing national and international scientific partnerships, including with the Grupo Saúde Planetária Brasil (Planetary Health Brazil Group) from IEA/USP.
	Developing a theoretical model based on complex adaptive systems to integrate human health and biodiversity conservation (12).
	Offering free courses from the e-Natureza research line on Natureza & Saúde (Nature & Health) on Einstein’s educational platform, with over 500 students enrolled (13).
	The Cientistas do Amanhã (Scientists of Tomorrow) project promotes science education among adolescents, encouraging knowledge dissemination through the role of Embaixadores e-Natureza (e-Nature Ambassadors) (14).
	Scientific outreach through the Science Arena platform (15) and social media (16) has reached over one million people, alongside lectures and events promoting planetary health (@enatureza_pesquisa).

IEA/USP = Instituto de Estudos Avançados/Universidade de São Paulo.

knowledge on public health and collective well-being. This initiative underscores the importance of interdisciplinary efforts to inspire new generations to engage with global challenges and contribute to building a healthier, more sustainable, and resilient future.

Health care operations

Initiatives related to sustainability and planetary health in health care operations are summarized in Chart 2.

Health services both impact and are directly impacted by climate change, and health care executives are increasingly expected to strengthen operational resilience, lead decarbonization efforts, and drive climate action (17). In 2023, Einstein's operational indicators – now representative of what is considered a health care system – accounted for over five million services across both private and public sectors (18).



Figure 1. Activities of the “Embaixadores e-Natureza” (e-Nature Ambassadors) – Cientistas do Amanhã (Scientists of Tomorrow) project 2024. Source: institutional documents.

Einstein has a longstanding history of investment and strategic commitment to planetary health, with strong engagement from senior leadership. Since 2011, the institution has been a signatory of the United Nations Global Compact, an initiative that promotes the adoption of core values in human rights, labor, and environmental responsibility. In addition, Einstein is a participant in the Declaração de São Paulo de Saúde Planetária (São Paulo Declaration on Planetary Health) (19) and has taken part in the Acordo Ambiental São Paulo (São Paulo Environmental Agreement) (20) since 2019 – an initiative aimed at reducing greenhouse gas emissions through voluntary actions.

Key initiatives include participation in the 29th Conference of the Parties (COP 29)

in Azerbaijan and the 79th United Nations General Assembly in New York, both occurring in 2024. The Global Compact also brings together organizational leaders to act as ambassadors for strategic themes. Einstein’s president represents Sustainable Development Goal 3 (Health and Well-being), promoting best practices and objectives through events, interviews, and social media to foster broader engagement. This strategic vision has supported the implementation of several projects aimed at reducing the environmental impact of health care operations.

In line with its operational decarbonization plan and the institution’s 2023–2028 environmental, social, and governance (ESG) goals, Einstein has adopted an innovative approach by launching its own energy

Chart 2. Sustainability initiatives related to planetary health: health care operations

Description	Activities
Implementation of sustainable practices in waste management, gas emissions, and energy production to reduce environmental impacts.	The Projeto Aterro Zero (Zero Landfill Project) reduced general waste disposal in landfills by 92% and recycled over 55% of the total waste volume.
	A 95% reduction in nitrous oxide (N ₂ O) consumption prevented the emission of 4,114 tons of CO ₂ .
	Self-production of energy has been implemented to reduce greenhouse gas emissions, currently covering 60% of the institution’s energy consumption.



Figure 2. Ambulatory unit initially flooded (left) and its subsequent transformation into an emergency care unit – a partnership between Einstein and the Secretaria Municipal de Saúde (Municipal Health Department) of Canoas (right). Source: institutional documents.

production project. This initiative was developed in partnership with Engeform Energia/PEC Energia and will be connected to the Serra das Vacas wind complex in Pernambuco (21).

The energy transition has advanced through a series of actions, including the use of renewable energy, installation of solar panels, and the implementation of measures to improve energy efficiency.

Climate emergency responses

Initiatives focused on sustainability and planetary health in climate emergency responses are presented in Chart 3.

Einstein has been active in various disaster situations, including the 2010 earthquake in Haiti (22), the deployment of assistance tents to combat dengue (2008 – state of Rio de Janeiro; 2015 and 2024 – state of São Paulo), and the 2023 landslide in São Sebastião (state of São Paulo), among others. Climate change is significantly increasing the frequency of such disasters, demanding a shift in planning and in economic and social investments to incorporate disaster risk management at national, state, and local levels – across public and private sectors, and within civil society (23). The Grupo Médico Assistencial de Preparação e Resposta a Emergências e Desastres (Medical Assistance Group for Emergency and Disaster Preparedness and Response) (GMA-PRED) is structured around the prior training

of professionals for field deployment using the Incident Command System (24). It includes the establishment of an organizational structure, the selection of volunteers, and the definition of necessary materials, medications, and equipment according to the specific demands of each scenario. This model has proven to be agile, efficient, and safe, ensuring high-quality medical care and the safety of both victims and response teams, with strong potential for replication in other contexts.

Final considerations

The challenges involved in the initiatives presented range from planning to execution, requiring significant investments of financial, human, and time resources for process review, technology implementation, and ongoing team training. Integration across different departments and professional categories is particularly important in transdisciplinary projects such as the *Natureza & Saúde* (Nature & Health) courses and GMA-PRED, which require efficient collaboration among professionals from diverse backgrounds and areas of expertise. Additionally, guiding more than twenty thousand employees toward sustainability demands a strategy that is fully aligned with the institution's mission to deliver health care to society and positively influence the sector.

Chart 3. Sustainability initiatives related to planetary health: climate emergency responses

Description	Activities
Development of an efficient, replicable disaster response model, reinforcing planetary health efforts during environmental crises.	Establishment of GMA-PRED, organized into operations, logistics, planning, and administration/finance units.
	During the Missão SOS-RS (SOS-RS Mission) (2024), a team of 57 professionals was mobilized, providing over 2,000 services within a 4-week period (Figure 2).

GMA-PRED = Grupo Médico Assistencial de Preparação e Resposta a Emergências e Desastres (Medical Assistance Group for Emergency and Disaster Preparedness and Response).

Although these projects have achieved success within the institutional context, their replication in other settings may face economic, social, and political constraints, reinforcing the need to adapt solutions to local conditions. Initiatives such as waste management and greenhouse gas emission reduction demonstrate strong transformative potential. Establishing planetary health as a central pillar of institutional policy reflects not only an ethical commitment but also a necessary response to current environmental and social challenges.

The planetary health perspective presented throughout this report highlights the interdependence between human health, the sustainability of natural systems, and the resilience of health care services. The initiatives described demonstrate how health care institutions can adopt sustainable and innovative practices aligned with the SDGs, generating positive impacts at local, community, national, and global levels.

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