Environmental health roadmap

Reinforcing the HAS' commitment to environmental issues in the context of its missions

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HAUTE AUTORITÉ DE SANTÉ

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Introduction

The impacts of climate change on people's health are numerous. For example, INSERM, the French National Institute of Health and Medical Research, estimates that there were 60,000 deaths in Europe due to the heatwave in 2022, with multiple impacts on physical and mental health (insomnia, anxiety and distress, and even depressive disorders for some)[1]. ANSES, the French Agency for Food, Environmental and Occupational Safety, and the French public health authority Santé publique France warn of France's exposure to new vector-borne diseases transmitted by ticks (Crimean-Congo haemorrhagic fever) or tiger mosquitoes (dengue, chikungunya, etc.)[2]. In addition, damage to the environment, resulting in a deterioration in air, water and food quality, has led to the development of numerous multifactorial chronic diseases: cancers, respiratory diseases, allergies, cardiovascular diseases, diabetes and obesity.

Healthcare activities contribute to pollution and climate change. According to experts at the Shift Project[3], the level of emissions from the healthcare system corresponds to the equivalent of 50 million tonnes of CO_2, i.e. more than 8% of France's carbon footprint. Healthcare activities also generate specific environmental problems: storage and use of hazardous products, discharge of specific liquids (laboratory activities, sterilisation, etc.), production of potentially infectious waste, etc.

A large number of national and local initiatives have already been launched, initiated by a wide range of players: federations, learned societies, healthcare facilities, etc. These reflect a strong demand on the part of the sector's stakeholders and a desire to bring about lasting change. In May 2023, a roadmap for ecological planning of the healthcare system was launched by the French Minister for Territorial Organisation and the Healthcare Professions, which includes objectives concerning all the sector's players.

The HAS (French National Authority for Health) has already taken these issues into account in its work, whether in the certification standard for healthcare facilities, which includes a dedicated criterion, in the manual for the assessment of quality in social facilities and services, in its work on the relevance of care, or through specific questions in the clinical decision support guide for the selection of digital medical devices for professional use. Recommendations intrinsically linked to environmental health issues, such as exposure to asbestos or chlordecone or the prescription of alternatives to health products, such as adapted physical activity, have already been formulated.

However, the HAS would like to play a more prominent role in these changes and fully commit to this drive.

At the request of its Board, the institution has amended its 2019-2024 strategic plan to include a section on environmental issues, with a view to making the subject a permanent part of its work. In line with this addition, an internal working group, bringing together all the institution's expertise, was formed to draw up this roadmap. This addition is just the first step in a process that will continue with the next 2025-2030 strategic plan.

The aim of the roadmap is to structure internal reflection processes and identify the actions to be implemented within the HAS to take better account of environmental health issues in its various missions and work. It details the cross-cutting actions and target objectives formulated by the working group representing the HAS' various bodies and adopted by its Board. The challenge is to be able to draw up a long-term strategy for implementing actions based on the HAS' three missions: assessing, recommending and measuring.

1. Study titled *La mortalité liée à la chaleur en Europe en 2022,* Nature Medecine, July 2023.
2. Including the thematic dossier titled *Maladie à transmission vectorielle,* Santé Publique France, May 2023.
3. Report titled *Décarboner la santé pour soigner durablement dans le cadre du Plan de transformation de l'économie française*, Shift Project, April 2023.

For the HAS, this challenge, immense as it is, is an opportunity to help the healthcare system move towards practices that are more sober, more environmentally friendly and more protective of human health, and to participate in a genuine paradigm shift. The ecological transition of the health sector should be seen as an opportunity rather than an obstacle.

> According to the definition by the Regional Office for Europe of the World Health Organisation (WHO) in 1994 during the Helsinki conference, “environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, psychosocial and aesthetic factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that may adversely affect the health of present and future generations.” The expression “environment and health” is also used in French texts.

Objective 1: Fully engage the HAS in environmental health actions

Action 1. Create a HAS mission on environmental issues

- Background

According to the French Ministry of Health and Prevention's "Ecological planning of the healthcare system" roadmap, only 34% of health and medico-social structures have appointed professionals as advisors for issues related to the ecological transition. Environmental health issues need to be handled by dedicated structures and staff.

- Actions and implementation

It is necessary to create an environmental mission, attached to governance, in order to implement the defined environmental policy. This mission would have multiple objectives:

- steer, prioritise and monitor this roadmap;
- contribute to the incorporation of environmental health issues in the next strategic plan and promote a forward-looking approach;
- ensure the HAS is represented in external bodies and in dealings with partners.

Action 2. Raise awareness and provide training for HAS staff

- Background

The field of environmental health has only recently been taken into account and there is little training available in this area. However, there is a strong demand and need for staff training to ensure that all personnel have the knowledge and skills they need to take action to promote the ecological transition.

- Actions and implementation

- Raise awareness of environmental health issues among all HAS staff, to encourage them to embrace the subject and support eco-friendly practices.
- Mobilise the Human Resources Department's training team to identify and propose the training programmes best suited to the needs and missions of the institution.

> **Already done!**
>
> In 2022, a first awareness-raising initiative via a "climate fresco" was offered for members of the Board and the executive committee (Comex).
>
> Training sessions were held for the environmental health working group relating to CSR methodologies.

Action 3. Include environmental health experts at every stage of the project development process

- Background

Recourse to external expertise is necessary in order to benefit from state-of-the-art developments and undertake actions falling within the HAS' remit. Integrating the expertise of environmental health professionals at all stages, from the drafting of recommendations (HAS personnel, working group and review group experts) through to validation, where relevant, would enable us to benefit from their insights and knowledge in the context of the institution's work.

- Actions and implementation
  - Put together a list of external experts who can be consulted, which would be drawn up by the HAS' expert assessment mission with the support of the environmental health mission.
  - Include environmental health experts in the HAS' committees and various groups (working group, review group, etc.) on the basis of requirements.
  - Create a network of internal advisors on these issues, coordinated by the environmental health mission.

Action 4. Promote the HAS' actions

- Background

Given the stakes and the importance of the subject, it seems necessary to promote projects concerning environmental health issues, and to give impetus to an internal drive on this subject. Such promotion is an important and essential stage in the decision-making process, enabling people to be more involved and commended in the deployment of projects.

- Actions and implementation
  - Disseminate and promote the actions undertaken by the institution via all existing presentation media.
  - Create a tab or thumbnail dedicated to environmental health on the HAS website.

Action 5. Form partnerships

- Background

The complexity of the questions raised by environmental challenges calls for a collaborative approach in order to benefit from and share the expertise of all the relevant players.

- Actions and implementation
  - Initiate collaborative work that could take the form of agreements or exchanges, whether in the public, private or voluntary sectors.
  - Develop this approach beyond France with counterparts or any other relevant international structures linked to the international mission of the HAS.

Objective 2: Incorporate an environmental perspective in health technology assessment

Action 6. Develop the good use of health technologies

- Background

It is essential to promote the good use of health technologies in order to improve patient care, avoid unjustified health insurance system spending and reduce the environmental impact of healthcare consumption.

The HAS already produces toolkit guides for the good use of medicines (BUM), as well as toolkit guides for the good use of health technologies (BUTS), which are communication tools aimed at healthcare professionals and/or patients concerning good-practice rules and the risk of misuse of reimbursable health products. By encouraging the rational use of reimbursable medicines, these guides help to reduce the environmental impact of health technologies.

It would seem appropriate to coordinate this activity with work on care relevance (guidelines, toolkit guides, pathways, etc.).

- Actions and implementation
  - Encourage widespread dissemination of good-practice toolkit guides among physicians in order to improve their knowledge of the tools and encourage their use.
  - Develop the production of toolkit guides for the good use of health technologies
  - Draw up clinical decision support guides and link them using medicinal product-indexed clinical decision support systems, if applicable.
  - Promote exchanges with other health technology assessment agencies, in particular the UK's National Institute for Health and Care Excellence (NICE), which develops decision support tools, in order to benefit from their insights.

> **Already done!**
>
> The HAS produces good-use toolkit guides, which are communication tools aimed at healthcare professionals and/or patients concerning good-practice rules and the risk of misuse of reimbursable health products.

Action 7. Consolidate the incorporation of environmental criteria in health technology assessment

- Background

The various stakeholders acknowledge the findings of the Shift Project, which observes that medicinal products and medical devices account for 54% of the healthcare system's emissions, and are working together to identify solutions. The HAS will endeavour to take into account the environmental challenges posed by healthcare technologies while at the same time preserving quality of care, which remains its primary mission. It should be emphasised that integrating an environmental dimension into healthcare technology assessment requires the availability of environmental impact indicators (in particular life cycle assessment [LCA] indicators) produced using a robust and consistent calculation method.

- Actions and implementation

  — Reinforce existing criteria that take environmental aspects into account in HAS assessment methods.

    - Public health benefit (PHB)
      A medicinal product is liable to have a PHB when it provides a service to the community, either because it helps markedly improve the population's health, or because it addresses a public health need, or because it reduces the consumption of resources. Environmental components could be integrated into the determination of public health benefit.

    - Health technology packaging
      Chapters dedicated to assessment of the packaging of health technologies have been defined in the context of the assessments of specialised HAS committees, including the Transparency Committee (CT) and the National Committee for Medical Device and Health Technology Assessment (CNEDiMTS). Unsuitable health-product packaging can lead to wastage. It is important to reinforce the assessment of health technology packaging.

    - Product disposal methods
      These focus on special waste (batteries, potentially infectious clinical waste and similar waste, [DASRI], etc.). The manufacturer's medico-technical file could take greater account of these product disposal/recycling methods. In addition, consideration could be given to including aspects relating to end-of-life-cycle analysis in certain assessments in the "methods of use" section (CNEDiMTS).

  — Consider how the environmental impact of health technologies can be incorporated into medico-economic assessments conducted by the HAS.

    Medico-economic assessment aims to compare the effects on the health of the populations affected by the health technologies being evaluated (patients, their carers, if applicable, and the general population) with the costs involved in producing them. At present, the assessments issued by the Economic and Public Health Evaluation Committee (CEESP) concern analyses that do not take into account the environmental impact related to health technologies. This environmental impact (e.g. carbon emissions) could be integrated into healthcare technology assessment through "medico-economic-environmental" analyses.

Already done!

The product disposal methods in the manufacturer's medico-technical file are already taken into account in some assessments, particularly in the "methods of use" chapter (CNEDiMTS).

The environmental impact of a product is taken into account in the criteria defining public health benefit (PHB) (in infectiology, when an antibiotic has a positive ecological impact by reducing the risk of spreading multidrug-resistant bacteria). In addition, criterion 3.4 "Impact on the ecological footprint" of the mapping of organisational impacts for health technology assessments is one of the criteria for defining an organisational impact (component of the PHB).

Objective 3: Develop and promote clinical practice guidelines and public health guidelines that take environmental aspects into consideration

Action 8. Step up work on prevention

- Background

Insofar as the involvement of the healthcare system in climate change has been demonstrated, the use of prevention is of prime importance. First and foremost, this means maintaining a healthy population and the health capital of each and every individual through health promotion and active prevention. Delaying the onset of an illness or limiting its severity benefits both the individual and the healthcare system by limiting the need for care.

The HAS has already made significant efforts in the field of primary prevention, particularly with respect to vaccines. However, work on secondary and tertiary prevention needs to be further developed. Intervening on these three levels of prevention would significantly improve the health of the population while at the same time reducing the environmental impact of healthcare.

- Actions and implementation
  - Continue and reinforce the integration of prevention into guidelines and care pathways.
  - Consider non-medicinal therapies for which there is a good level of evidence in the literature and include them, where they provide at least equivalent quality of care, in documents concerning good clinical practice.

> **Already done!**
>
> Clinical practice guidelines and care pathway guides have been published concerning addiction prevention (specific risks such as alcohol, smoking, psychoactive substances, etc.) and prescribing physical activity. Other work is ongoing relating to certain conditions, such as cardiovascular risks.

Action 9. Reinforce relevance initiatives, improve their impact and monitor their progress

- Background

Relevance of care is a strategic subject, representing a dimension of quality of care in its own right and a major challenge for patient safety. It also helps limit the impact of the health system on the environment. Hence, relevance should ensure “the right healthcare intervention at the right time, in the right place for the right patient”. Over-prescribing or inappropriate prescribing of medicinal products, medical devices and additional tests, including laboratory tests and radiological investigations, should thus be avoided.

- Actions and implementation
  - Improve links with those working in the field and develop a strategy with the French National Health Insurance system to improve dissemination and promote what already exists.

- Develop more projects focusing on the relevance of care.
- Leverage health data to identify non-relevant practices and follow up the effect of improvement actions.

> **Already done!**
>
> Since its creation, the HAS has looked at the relevance of prescriptions, procedures, hospital stays, care pathways and funding arrangements. In this context, it has produced a number of relevance information sheets.

Action 10. Encourage greater consideration of environmental issues in guideline development methods

- Background

Given the impact of climate change on health, it is important to consider these issues when developing clinical practice guidelines. To achieve this, expertise in this discipline must be incorporated at all stages in the development of guidelines, when the subject lends itself to this.

- Actions and implementation
  - Involve experts from the environmental field, as required, when reviewing scoping documents by the Guidelines, relevance, pathways and indicators committee (CRPPI).
  - Include in the work programme, on a self-referral basis, guideline projects such as:
    - drafting of a general scoping document dealing with practices for promoting good environmental health, supported by feedback from the field (experience of medical and medico-social facilities, hospital departments, etc.), with the aim of facilitating the understanding of environmental health in-house;
    - development of guidelines on good environmental health promotion practices in the healthcare and/or medico-social field (e.g. single-dose dispensing of medicines, etc.).
  - Provide project leaders with access to a pool of environmental health experts to take part in working groups and review groups.
  - Create a quick questionnaire to be used systematically when HAS teams launch new projects, in order to identify work related to environmental health.

	Example questionnaire
Q1	In the exploratory analysis of available data (literature, feedback from national councils for healthcare professionals/federations, user associations, etc.), is there any data specifying the relationship between the environment and the disease/theme?
Q2	Does the requesting party have any questions relating to the environmental aspect? (Add a question in the referral questionnaire)
Q3	Are there any means of prevention and/or treatments designed to limit potential harmful environmental effects and/or, conversely, promote positive environmental effects?
Q4	Is it pertinent to include an environmental health expert in the working group during the consultation phases?

Already done!

The 2021 memo sheet on "What to do in the event of an air pollution peak" highlights the fact that air pollution, which has short- and long-term impacts on health, has been classified as a human carcinogen. This work recommends the introduction of measures to durably reduce air pollution, which would considerably improve the health and quality of life of the population.

Objective 4: Improve quality measurement in relation to environmental health issues

Action 11. Expand and reinforce the requirements of environmental health-related criteria in standards for healthcare facility certification (CES) and assessment of social and medico-social facilities and services (ESSMS)

- Background

In the context of its role of measuring and improving quality of care and patient safety, the HAS acts as a lever among facilities and professionals to promote more environmentally-friendly practices and encourage stakeholders to put in place strategies to adapt to climate change and its consequences.

- Actions and implementation
  - Give greater consideration to the following subjects in certification and assessment standards:
    - practices and organisations that are more environmentally friendly, for example: limit energy consumption and waste production; reflect on the use of medical devices (sterilisation or single use); optimise patient travel by grouping together appointments/examinations;
    - strategy for adapting to climate change and its consequences for patients and the health of professionals (heatwaves, poor air quality, floods, droughts, changes in biodiversity (mosquitoes) and construction).

> **Already done!**
>
> In 2020, a dedicated criterion was defined in the standard for the certification of healthcare facilities, criterion 3.6-04, entitled “Environmental risks and sustainable development issues are properly managed”. The standard was modified in 2022 and 2023 to make it easier to read and update the references.
>
> In 2022, another criterion was defined in the standard for the quality assessment of social and medico-social facilities and services (ESSMS). This is criterion 3.15.1 “The social or medico-social facility or service defines and implements its purchasing optimisation and sustainable development strategy” in the certification standard for social and medico-social facilities and services.

Action 12. Incorporate actions aimed at limiting the environmental impact of healthcare practices into physician and medical team accreditation programmes

- Background

To limit the impact of health on the environment, it is necessary to raise awareness among healthcare professionals, leading to changes in their practices. That is why it is important to involve the people on the ground - accredited physicians and teams - who will serve as relays and promote these changes.

- Actions and implementation
  - Propose and promote the following in accreditation programmes drawn up by approved bodies:
    - actions aimed at limiting the environmental impact of medical practices, for example by giving consideration to the production and sorting of waste or the use of the anaesthetic gases that contribute most to the greenhouse effect;

- activities aimed at limiting the impact of pollution and climate change on the health of patients and professionals.

— Create a specific risk situation in accreditation programmes to encourage professionals to report care-related adverse events.
— Promote the work carried out by professionals on sustainable development by mentioning it on the accreditation certificate, for example.

> **Already done!**
>
> The HAS encourages all approved bodies to include in their accreditation programme an activity relating to "prevention of specific risks depending on the discipline: exposure to anaesthetic gases, pollution by fumes linked to the use of electric scalpels".

Action 13. Provide feedback on environmental health issues, based on reports in the HAS' care-related adverse event databases

▮ Background

Climate change has an impact on patient safety, which can lead to care-related adverse events. Healthcare professionals are encouraged to identify and analyse these events, whatever their level of seriousness, in order to learn from them and prevent them from happening again.

▮ Actions and implementation

— Analyse HAS feedback databases resulting from accreditation and reporting of care-related adverse events.
— Provide feedback via:
  - the "focus on patient safety" series (on patient care deficiencies during heatwaves, for example);
  - patient safety solutions;
  - focus in the care-related serious adverse event report;
  - paper or scientific communication.

> **Already done!**
>
> An analysis of care-related adverse events associated with heatwaves is under way.

Summary of proposals

Summary of “cross-cutting” proposals and timescale

Proposal	Priority	Timescale*
Create a HAS mission on environment-related issues	High	Short term
Raise awareness and provide training for HAS staff	High	Medium term
Include environmental health experts at every stage of the project development process	High	Long term
Promote the HAS’ actions	Medium	Medium term
Form partnerships	Low	Long term

Summary of “assessing” proposals and timescale

Proposal	Priority	Timescale
Develop the good use of health technologies	High	Short term
Consolidate the integration of environmental criteria in health technology assessment	High	Medium term

Summary of “recommending” proposals and timescale

Proposal	Priority	Timescale
Step up HAS work on prevention	High	Medium term
Reinforce relevance initiatives, improve their impact and monitor their progress	High	Short term
Encourage greater consideration of environmental issues in guideline development methods	Medium	Medium term

* Short term: less than 1 year; medium term: 1 to 3 years; long term: more than 3 years.

Summary of “measuring and improving” proposals and timescale

Proposal	Priority	Timescale
Expand and reinforce the requirements of environmental health-related criteria in standards for healthcare facility certification (CES) and assessment of social and medico-social facilities and services (ESSMS)	High	Short term
Incorporate actions aimed at limiting the environmental impact of healthcare practices into physician and medical team accreditation programmes	Medium	Short term
Provide feedback on environmental health issues, based on reports in the HAS’ care-related adverse event databases	Low	Short term

Bibliographic references

1. Présentation de l'opération Zéro Phtalates [En ligne] 2020.

2. Santé durable. Cahier des charges du développement durable en cabinet [En ligne] 2022.

3. Lancement du guide des « Unités durables » Un projet original et innovant, porté et conçu par les professionnels du CHU de Bordeaux [En ligne] 2022.

4. Médecine et environnement : une évidence qui s'impose peu à peu [dossier - 16 juin] [En ligne] 2023.

5. Professionnels et organisations de santé appellent à végétaliser l'alimentation sans faire porter le poids aux consommateurs [dépêche APM] [En ligne] 2023.

6. La santé Décarbone. La Prescription infirmière écoresponsable se déploie au CHU de Bordeaux - Dépêche Hospimédia [11 07 23] [En ligne] 2023.

7. La CNSA va calculer l'empreinte carbone des établissements et services médico-sociaux. Dépêche APM [28 03 2023] [En ligne] 2023.

8. L'Igas estime que les dépenses de l'État pour la santé environnement sont limitées. Dépêche Hospimédia [17 03 23] [En ligne] 2023.

9. Trois hôpitaux racontent comment ils ont réduit l'exposition des salariés au formaldéhyde. Gestion des risques. Hospimédia [06 07 2023] [En ligne] 2023.

10. « Le secteur sanitaire n'est pas prêt à affronter les vagues de chaleur » (Camille Devroedt, Csis). Dépêche APM [02 06 2023] [En ligne] 2023.

11. Les hôpitaux « ne sollicitent pas assez les six agences de l'eau ». Dépêche APM [21 04 2023] [En ligne] 2023.

12. Les CHU s'engagent avec UniHA dans la décarbonation de leurs achats. Dépêche APM [19 04 2023] [En ligne] 2023.

13. Alerte Breizh [En ligne] 2023.

14. La formation de tous les hospitaliers à la transition écologique débute par l'AP-HM [dépêche Hospimédia] [En ligne] 2023.

15. La formation à la transition écologique a débuté pour les agents de la fonction publique hospitalière. Dépêche APM [18 07 2023] [En ligne] 2023.

16. Agence de la transition écologique Auvergne-Rhône-Alpes. Le réseau transition écologique en santé [En ligne] 2020.

17. Agence de transition écologique, BRGM. Géothermie de surface. Une énergie performante et durable pour le secteur sanitaire et médico-social. 5 bonnes raisons de choisir la géothermie. Angers: ADEME; 2023.

18. Agence nationale de la performance sanitaire et médico-sociale. Développement durable : où en êtes-vous ? [En ligne] 2022.

19. Agence régionale de Santé Provence-Alpes Côte d'Azur. Une démarche de développement durable dans les établissements sanitaires et médico-sociaux de la région [En ligne]. Marseille: ARS PACA; 2021.

20. Agence régionale de santé Pays de la Loire. Une dynamique forte en Pays de la Loire pour promouvoir et accompagner la transition énergétique des établissements sanitaires et médico-sociaux [En ligne] 2022.

21. Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services (HHS), Sampath B, Jensen M, Lenoci-Edwards J, Little K, et al. Reducing healthcare carbon emissions. A primer on measures and actions for Healthcare organizations to mitigate climate change. Rockville: AHRQ; 2022.

22. APF France Handicap. Résonance. L'engagement d'APF France handicap en matière de responsabilité sociétale. Référentiel RSE. Paris: APF; 2021.

23. Association française d'Urologie. Green cabinet. Le guide du développement durable. Paris: AFU; 2023.

24. Association santé environnement France. Enquête 2022. Formation en Santé Environnement. Et vous, vous en êtes où ? Formation - information - sensibilisation des professionnels et acteurs de santé à la santé environnement. Quelles attentes et quels besoins ? Résultats complets. Paris: ASEF; 2022.

25. Assurance Maladie. Contribuer à la décarbonation du système de santé et approfondir la prise en compte des enjeux de santé environnementale. Dans : Améliorer la qualité du système de santé et maîtriser les dépenses. Propositions de l'Assurance Maladie pour 2024. Montreuil 2023. p. 56-63.

26. Australian Commission on Safety and Quality in Health Care, Wyns A, Bragge P, Armstrong F, Carino S, Dolker D, et al. A review of sustainable healthcare policy, practice, and research with a focus on safety and quality. Sydney: ACSQHC; 2022.

27. Bonnet L, Marcantoni J, D'Aranda E. Éco-conception des nouveaux parcours de soins. Le Praticien en Anesthésie Réanimation 2022;26(1):20-7.

28. Bordiec S. Marcel Calvez, Santé et territoires. Des soins de proximité aux risques environnementaux. Revue européenne des sciences sociales 2016;54-2.

29. Born KB, Levinson W, Vaux E. Choosing Wisely and the climate crisis: a role for clinicians. BMJ Qual Saf 2023.

30. Canadian Agency for Drugs and technologies in Health. Reducing the environmental impact of clinical care emerging. CADTH Horizon Scan. Ottawa: CADTH; 2023.

31. Casellas C, Lévi Y. Évaluation des risques environnementaux et sanitaires liés aux résidus de médicaments dans les eaux : préalable fondamental pour guider les décisions de gestion. Environnement, Risques &

Santé 2018;17(Hors-serie):29-39.

32. Centers for Disease Control and Prevention (CDC), Sehulster LM, Chinn RY, Arduino MJ, Carpenter J, Donlan R, et al. Guidelines for environmental infection control in health-care facilities [updated : july 2019]. Atlanta: CDC; 2003.

33. Centre belge d'information pharmacothérapeutique. Impact environnemental des dispositifs pour inhalation utilisés dans l'asthme et la BPCO. Folia Pharmacotherapeutica 2023;50(06).

34. Choosing Wisely Italy, Vernero S. Choosing Wisely and environmental sustainability [En ligne] 2022.

35. CHU Amiens Picardie. Agir pour le développement durable à l'hôpital [En ligne] 2021.

36. CHU Clermont-Ferrand. Évolution du tri des déchets [21 04 2023] [En ligne] 2023.

37. Comité pour le développement durable en santé. Boîte à outils [En ligne] 2022.

38. CREAI Hauts-de-France, Barbe A. Les MAS et les EAM s'engagent pour demain. Etude sur les actions en faveur de l'environnement mises en œuvre dans les maisons d'Accueil Spécialisées (MAS) et les Etablissements d'Accueil médicalisé (EAM) du Nord et du Pas-de-Calais. Lille: CREAI Hauts-de-France; 2022.

39. CREAI Hauts-de-France, Barbe A. Les MAS et les EAM s'engagent pour demain. Etude sur les actions en faveur de l'environnement mises en œuvre dans les maisons d'Accueil Spécialisées (MAS) et les Etablissements d'Accueil médicalisé (EAM) du Nord et du Pas-de-Calais. Fiches illustratives. Lille : CREAI Hauts-de-France; 2022.

40. Department of Health and Social Care. Exploring perceptions of green social prescribing among clinicians and the public. Research and analysis London; 2023.

41. Desterbecq C, Tubeuf S. Inclusion of environmental spillovers in applied economic evaluations of healthcare products. Value Health 2023.

42. Direction de la recherche des études de l'évaluation et des statistiques. Fiches actions FDR 2024-2026. 30 mai 2023 ; 2023.

43. Doc'duravle. Intégrer le développement durable dans son cabinet [En ligne] 2022.

44. Europe Commission, Fazio S, Biganzioli F, De Laurentiis V, Zampori L, Sala S, et al. Supporting information to the characterisation factors of recommended EF Life Cycle Impact Assessment methods version 2, from ILCD to EF 3.0, EUR 29600 EN. Ispra: EC; 2018.

45. Fédération hospitalière de France. 50 propositions pour soutenir la transition écologique des hôpitaux et établissements-sociaux publics. Paris: FHF; 2020.

46. Food and Drug Administration, Center for Drug Evaluation and Research (CDER), Center for Biologics Evaluation and Research (CBER). Environmental assessment of human drug and biologics applications. Guidance for Industry. Rockville: FDA; 1998.

47. Gaudillière J-P, Jas N. Introduction : la santé environnementale au-delà du risque ? Perturbateurs endocriniens, expertise et régulation en France et en Amérique du Nord. Sciences sociales et santé 2016;34(3):5-18.

48. Goldberg D. Social Justice, Health inequalities and methodological individualism in US Health Promotion. Public Health Ethics 2012;5:104-15.

49. Goupil-Sormany I, Debia M, Glorennec P, Gonzalez JP, Noisel N, Dab W, et al. Environnement et santé publique. Fondements et pratiques. Rennes: EHESP; 2023.

50. Guillon S, Nguyen Ba E, Oufkir N, Hequet D, Rouzier R. Empreinte carbone et cancer : l'heure de la green oncology ? Bull Cancer 2020;107(5):612-3.

51. Guirado-Fuentes C, Abt-Sacks A, Trujillo-Martín MDM, García-Pérez L, Rodríguez-Rodríguez L, Carrion IRC, et al. Main challenges of incorporating environmental impacts in the economic evaluation of health technology assessment: A scoping review. Int J Environ Res Public Health 2023;20(6).

52. Haut Conseil de la santé publique. Evaluation globale des plans nationaux santé-environnement (2004-2019). Paris: HCSP; 2022.

53. Haut Conseil de la Santé Publique. Séminaire Santé-environnement : quinze ans de politiques publiques [En ligne] 2023.

54. Haut Conseil pour le Climat. Acter l'urgence - engager les moyens. Rapport annuel 2023. Paris: HCC; 2023.

55. Haute Autorité de Santé. Fiche développement durable. Critère n° 7d : Hygiène des locaux. Saint-Denis La Plaine: HAS; 2009.

56. Haute Autorité de santé. Développement de la prescription de thérapeutiques non médicamenteuses validées. Saint-Denis La Plaine: HAS; 2011.

57. Haute Autorité de santé. Fiche développement durable. Critère n°1b : Engagement dans le développement durable. Saint-Denis La Plaine: HAS; 2011.

58. Haute Autorité de santé. Fiche développement durable. Critère n° 6f : achats éco responsables et approvisionnements. Saint-Denis La Plaine: HAS; 2011.

59. Haute Autorité de santé. Fiche développement durable. Critère n° 7a : Gestion de l'eau. Saint-Denis La Plaine: HAS; 2011.

60. Haute Autorité de santé. Fiche développement durable. Critère n° 7b : Gestion de l'air. Saint-Denis La Plaine: HAS; 2011.

61. Haute Autorité de santé. Fiche développement durable. Critère n° 7c : Gestion de l'énergie. Saint-Denis La Plaine: HAS; 2011.

62. Haute Autorité de santé. Fiche développement durable. Critère n° 7e : Gestion des déchets. Saint-Denis La Plaine: HAS; 2011.

63. Haute Autorité de santé. Des outils utiles sur le

développement durable [En ligne] 2011.

64. Haute Autorité de santé. Colloque HAS : Contribuer à la régulation par la qualité et l'efficience 18 décembre 2014 Paris. Compte Rendu. Paris: HAS; 2014.

65. Haute Autorité de santé. Les questions à se poser pour le choix d'un dispositif médical numérique dans sa pratique professionnelle. Guide d'aide au choix à destination des professionnels de santé et des structures hospitalières. Saint-Denis La Plaine: HAS; 2023.

66. Haute Autorité de santé. Guide d'aide au choix des dispositifs médicaux numériques à usage professionnel. À destination des professionnels et des établissements de santé. Saint-Denis La Plaine: HAS; 2023.

67. Health Care without Harm Europe, Ruiz E. Procuring for greener pharma. Report. Brussels: HCWH; 2022.

68. Health Care woithout Harm, ARUP, Karliner J, Slotterback S, Boyd R, Ashby B, et al. L'empreinte climatique du secteur de la santé. Comment le secteur de la santé participe à la crise mondiale et les possibilités d'action : HCWH; 2019.

69. Health Care without Harm Europe. Principes directeurs d'un projet pilote : Comment aborder l'étude sur l'empreinte carbone dans les soins de santé en Europe : HCWH Europe; 2018.

70. Hensher M. Incorporating environmental impacts into the economic evaluation of health care systems: Perspectives from ecological economics. Resources, Conservation and Recycling 2020;154:104623.

71. Hubbert L, Embleton N, Wright A, Nicholson L. Is evidence on environmental impact included in health technology assessment and does it influence decision-making? [abstract]. Value Health 2022:S307.

72. Inspection générale des affaires sociales (IGAS), Conseil général de l'alimentation de l'agriculture et des espaces ruraux (CGAAER), Conseil général de l'environnement et du développement durable (CGEDD), Inspection générale de l'administration (IGA), Inspection générale de l'éducation du sport et de la recherche (IGESR), Inspection générale des finances (IGF), et al. Moyens et gouvernance de la politique de santé environnement. Tome 1 Rapport IGAS n°2022-011r/ igf n°2022-m-006-02 /cgaaer n°21135/cgedd n°014240-01/ iga n°22005r/igesr n°2022-132. Paris: IGAS; 2022.

73. Institut de recherche et documentation en économie de la santé, Seppänen AV, Zeynep O. The environmental sustainability of health care systems. A literature review on the environmental footprint of health care systems and interventions aiming to reduce it –for a framework for action for France. Paris: IRDES; 2023.

74. Jouve M, Campagnac C. Impacts de l'activité hospitalière sur l'environnement : enjeux en termes de changement climatique. Les Tribunes de la santé 2019;61(3):75-82.

75. Kenny J, Shah K. OP78 Taking a societal perspective in health technology assessment: is environmental impact a special case? Abstracts from the HTAi 2022 Meeting in Utrecht, Netherlands Int J Technol Assess Health Care 2022;38:S29.

76. Kitzes J. An introduction to environmentally-extended input-output analysis. Ressources 2013:489-503.

77. Laurent O. Dans la boîte noire. Qu'est-ce que l'intelligence artificielle peut apporter à la recherche en santé-environnement ? Environnement, Risques & Santé 2020;19(5):376-7.

78. Le Moal J, Eilstein D, Salines G. La santé environnementale est-elle l'avenir de la santé publique ? Sante Publique (Bucur) 2010;22(3):281-9.

79. Legendre A-L, Remvikos Y. Évaluation des impacts sur la santé : d'une évaluation de l'évaluation à l'ouverture d'une discussion sur les impensés de la démarche. Environnement, Risques & Santé 2018;17(5):505-16.

80. Lévi Y. La présence de résidus de médicaments dans l'environnement induit-elle des risques sanitaires ? Environnement, Risques & Santé 2018;17(HS):5-6.

81. Limb M. Health professionals demand action on the climate to protect people and the planet. BMJ 2023;381:851.

82. Marrauld L, Egnell M, Verneuil B, Rambaud T. Soigner les patients tout en soignant la planète : le bilan carbone du système de santé français et ses leviers de réduction. Médecine des Maladies Métaboliques 2023;17(4):318-25.

83. Marrauld L, Egnell M, Verneuil B, Rambaud T. Soigner les patients tout en soignant la planète : le bilan carbone du système de santé français et ses leviers de réduction. Médecine des Maladies Métaboliques 2023;17(4):318-25.

84. Marsh K, Ganz ML, Hsu J, Strandberg-Larsen M, Gonzalez RP, Lund N. Expanding health technology assessments to include effects on the environment. Value Health 2016;19(2):249-54.

85. Marsh K, Ganz ML, Hsu J, Strandberg-Larsen M, Gonzalez RP, Lund N. Expanding Health Technology Assessments to Include Effects on the Environment. Value Health 2016;19(2):249-54.

86. McAlister S, Morton RL, Barratt A. Incorporating carbon into health care: Adding carbon emissions to health technology assessments. Lancet. Planetary health 2022;6(12):e993-e9.

87. McAlister S, Morton RL, Barratt A. Incorporating carbon into health care: adding carbon emissions to health technology assessments. The Lancet. Planetary health 2022;6(12):e993-e9.

88. Ministère de la santé et de la prévention. Une nouvelle stratégie nationale en construction sur les produits phytopharmaceutiques, pour la réduction des effets sur la santé et l'environnement, et pour l'adaptation des techniques de protection des cultures. Communiqué de presse [12 07 23]

[En ligne] 2023.

89. Ministère de la santé et de la prévention. Engagement du gouvernement en faveur de la santé environnementale : nouvelle réunion du groupe santé environnement. Animée par Christophe Béchu, ministre de la Transition écologique et de la Cohésion des territoires, et Agnès Firmin Le Bodo, ministre déléguée en charge de l'Organisation territoriale et des Professions de santé [09 03 23] [En ligne] 2023.

90. Ministère de la santé et de la prévention. Planification écologique du système de santé. Feuille de route ; 2023.

91. Ministère de la transition écologique. Un environnement, une santé: 4e plan national Santé environnement. Paris; 2021.

92. Mulcahy E. UK Health alliance on climate change brings health professionals together to call for action. BMJ 2022;379:o2649.

93. National Institute for Health and Care Excellence. NICE strategy 2021 to 2026. Dynamic, collaborative excellent London: NICE; 2021.

94. New Zealand Green Building Council. Life cycle impacts calculator guide. Auckland: NZGBC; 2023.

95. NHS England, NHS Improvement. Delivering a 'Net Zero' National Health Service. London: NHS; 2022.

96. Organisation Mondiale des Médecins de Famille (WONCA), Alliance pour la santé planétaire (PHA), Groupe des professionnels de santé pour la santé planétaire (Clinicians for Planetary Health Working Group). Déclaration appelant les médecins généralistes du monde entier à agir en faveur de la santé planétaire : WONCA; 2019.

97. Pinho-Gomes AC, Yoo SH, Allen A, Maiden H, Shah K, Toolan M. Incorporating environmental and sustainability considerations into health technology assessment and clinical and public health guidelines: a scoping review. Int J Technol Assess Health Care 2022;38(1):e84.

98. Pinho-Gomes AC, Yoo SH, Allen A, Maiden H, Shah K, Toolan M. Incorporating environmental and sustainability considerations into health technology assessment and clinical and public health guidelines: a scoping review. Int J Technol Assess Health Care 2022;38(1):e84.

99. Polisena J, De Angelis G, Kaunelis D, Gutierrez-Ibarluzea I. Environmental impact assessment of a health technology: a scoping review. Int J Technol Assess Health Care 2018;34(3):317-26.

100. Polisena J, De Angelis G, Kaunelis D, Gutierrez-Ibarluzea I. Environmental Impact Assessment Of A Health Technology: A Scoping Review. Int J Technol Assess Health Care 2018;34(3):317-26.

101. Remvikos Y. La santé environnementale et le difficile changement de paradigme en santé publique. Environnement, Risques & Santé 2019;18(2):100-3.

102. Renaud A. Santé planétaire : verra-t-on une transformation des métiers de la santé ? [Dossier]. Concours Pluripro 2023.

103. Rodríguez de Santiago E, Dinis-Ribeiro M, Pohl H, Agrawal D, Arvanitakis M, Baddeley R, et al. Reducing the environmental footprint of gastrointestinal endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) and European Society of Gastroenterology and Endoscopy Nurses and Associates (ESGENA) Position Statement. Endoscopy 2022;54(8):797-826.

104. Santé Publique France. Fortes chaleurs et canicule : un impact sur la mortalité important nécessitant le renforcement de la prévention et de l'adaptation au changement climatique [En ligne] 2023.

105. Santé Publique France, Association Internationale des Instituts Nationaux de Santé Publique (IANPHI). La santé comme levier d'action face au changement climatique. Actes de colloque. 8 avril 2022. Saint-Maurice: SPF; 2022.

106. Slater M, Bartlett S. 10 things a doctor can do to combat climate change. BMJ 2022;379:o2650.

107. Société française d'Anesthésie et de Réanimation (SFAR), Société française d'hygiène hospitalière (SF2H), Société française de pharmacie clinique (SFPC), El-Mahdi H, Pauchard JC, Pons S, et al. Réduction de l'impact environnemental de l'anesthésie générale. Recommandations de pratiques professionnelles (RPP). Paris: SFAR; 2022.

108. Société francophone de néphrologie dialyse et transplantation. Guide des bonnes pratiques de la dialyse verte. Paris: SFNDT; 2023.

109. Ten Have P, van Hal P, Wichers I, Kooistra J, Hagedoorn P, Brakema EA, et al. Turning green: the impact of changing to more eco-friendly respiratory healthcare - a carbon and cost analysis of Dutch prescription data. BMJ Open 2022;12(6):e055546.

110. The Shift Project. Le bilan carbone de la santé en France : combien d'émissions de gaz à effet de serre ? Rapport Technique. 2021.

111. Toolan M, Walpole S, Shah K, Kenny J, Jónsson P, Crabb N, et al. Environmental impact assessment in health technology assessment: principles, approaches, and challenges. Int J Technol Assess Health Care 2023;39(1):e13.

112. UK Health Security Agency. Third health and care adaptation report. London: NHS; 2021.

113. Urbasolar. L'hôpital de Carcassonne proche de l'autonomie énergétique ! [En ligne] 2021.

114. URPS Médecins libéraux d'Occitanie. Changement climatique et pollution de l'air. Montpellier: URPS Occitanie; 2019.

115. URPSML PACA. Comment protéger mes patients de la contamination chimique et des perturbateurs endocriniens. Guide à l'usage des médecins libéraux. Dossier pratique. Marseille: URPS; 2020.

116. URPSML PACA. Comment protéger mes patients de la contamination chimique et des perturbateurs endocriniens. Guide à l'usage des médecins libéraux. Dossier scientifique. Marseille: URPS; 2020.

117. Walpole SC, Weeks L, Shah K, Cresswell K, Mesa-Melgarejo L, Robayo A, et al. How can environmental impacts be incorporated in health technology assessment, and how impactful would this be? Expert Rev Pharmacoecon Outcomes Res 2023:1-6.

118. Williams IJM. Making doctors' practices greener: you can't manage what you don't measure. BMJ 2022;379:o2647.

119. Williams JTW, Bell KJL, Morton RL, Dieng M. Exploring the Integration of Environmental Impacts in the Cost Analysis of the Pilot MEL-SELF Trial of Patient-Led Melanoma Surveillance. Appl Health Econ Health Policy 2023;21(1):23-30.

120. World Health Organization. Climate and Health country profile. Geneva: WHO; 2015.

121. World Health Organization. Compendium of WHO and other UN guidance on health and environment. Geneva: WHO; 2021.

122. World Health Organization. The Health argument for climate action. COP26 special report on climate change and health. Geneva: WHO; 2021.

123. World Health Organization. Mental health and climate change : Policy brief. Geneva: WHO; 2022.

124. World Health Organization. Mental health and climate change : Policy brief. Geneva: WHO; 2022.

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Abbreviations and acronyms

LCA	Life cycle analysis
ANSES	*Agence nationale de sécurité sanitaire de l'alimentaire, de l'environnement et du travail* (French Agency for Food, Environmental and Occupational Safety)
ATACH	Alliance for Transformative Action on Climate and Health
BUM	*Bon usage du médicament* (Good Use of Medicines)
BUTS	*Bon usage des technologies de santé* (Good Use of Health Technologies)
CEESP	*Commission d'évaluation économique et de santé publique* (Economic and public health evaluation committee)
CES	*Certification des établissements de santé* (Healthcare facility certification)
CHU	*Centre hospitalier universitaire* (university hospital)
CNEDiMTS	*Commission nationale d'évaluation des dispositifs médicaux et des technologies de santé* (French National Committee for Medical Device and Health Technology Assessment)
CNSA	*Caisse nationale de solidarité pour l'autonomie* (French National Solidarity Fund for Autonomy)
Comex	Executive committee
CRPPI	*Commission recommandations, pertinence, parcours et indicateurs* (Guidelines, relevance, pathways and indicators committee)
CSE	*Commission sur l'environnement* (Environment Committee)
CT	*Commission de la transparence* (Transparency committee)
DASRI	*Déchets d'activités de soins à risques infectieux et assimilés* (Potentially infectious clinical waste and similar waste)
DGOS	*Direction générale de l'offre de soins* (French Directorate General of Healthcare Provision)
DGS	*Direction générale de la santé* (French Ministry of Health)
DiQASM	*Direction de la qualité de l'accompagnement social et médico-social* (Department for the Quality of Social and Medico-Social Support)
MD	Medical devices
DMD	Digital medical devices
CRAE	Care-related adverse events
CRSAE	Care-related serious adverse events
ESSMS	*Établissements et services sociaux et médico-sociaux* (Social and medico-social facilities and services)
PHB	Public health benefit
NICE	National Institute for Health and Care Excellence, UK
CPG	Clinical practice guidelines
CSR	Corporate social responsibility
SAM	*Systèmes d'aide à la décision indexée par médicaments* (Medicinal product-indexed clinical decision support systems)
SBP	*Service des bonnes pratiques* (Department for Good Clinical Practice)
SEAP	*Service d'évaluation et d'accompagnement professionnel* (Professional Assessment and Support Department)
SED	*Service évaluation des dispositifs* (Medical Device Assessment Department)
SEvOQSS	*Service évaluation et outils pour la qualité et la sécurité des soins* (Department of Care Quality & Safety Assessments and Tools)

HAUTE AUTORITÉ DE SANTÉ

Développer la qualité dans le champ sanitaire, social et médico-social