Environmental management systems and their relevance to dermatology

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Abstract

The International Organization for Standardization ISO 14000 family of standards and the European Commission Eco-Management and Auditing Scheme are examples of voluntary environmental management systems (EMS). EMS provides a framework to facilitate organizations to incorporate environmental considerations into their governance and operations to improve the use of resources and waste management practices. Organizations with EMS accreditation reported operational efficiency improvements and cost savings. This review article describes EMS and discusses their relevance to the dermatology sustainability.

Introduction

Environmental management systems (EMS) are frameworks to facilitate organizations to incorporate environmental considerations into their governance and operations to improve the use of resources and waste management practices. EMS-accredited organizations report operational efficiency improvements and cost savings.[1] EMS has a potential role in facilitating the UK National Health Service (NHS) to achieve its statutory net zero carbon emissions target by 2040.[2] This review article describes EMS and discusses their relevance to dermatology sustainability.

Environmental management systems relevant to healthcare

Internationally recognized voluntary EMS include the ISO 14000 family of standards, developed in 1996 by the International Organization for Standardization[3] and the Eco-Management and Auditing Scheme (EMAS), developed in 1993 by the European Commission.[1] The principles of ISO standards evolved around the key steps of 'plan, do, check, act, and continual improvement'.[3] Other members of the ISO 14000 family of standards focus on domains such as audit, labelling and life cycle analysis,[3] which are important in measuring, reviewing and maintaining the impact of EMS. EMAS is perceived as a vigorous and individualized EMS that builds on the principles of ISO 14001, with additional requirements on legal compliance and provision of continuing improvement to environmental performance.[3] Any organizations can apply for EMS accreditation following successful third-party assessment. Organizations may put forward a limited or the full scope of their operations for assessment by third parties. Periodic auditing/reassessment by third parties is required to maintain the EMS accreditation.

It is necessary to highlight that EMS differ from environmental standards (Table 1). Environmental standards are statutory or administrative regulations that organizations have an obligation to meet for the purpose of protecting and maintaining the environment. Examples of historical and current standards included the NHS Controls and Assurance System in 2000 prescribing a standard on waste management practices,[4] the Hospital Food Standards in 2014 outlining requirements for sustainable food procurement and catering,[5] and the Net Zero Carbon Hospital Standard in 2021 stating the requirements for sustainable construction and management of new NHS estates.[6] Possession of an EMS accreditation is not a prerequisite to satisfy these statutory standards.

Perceived drivers and barriers to pursue environmental management system accreditation

A 2009 report prepared for the EMAS discussed the drivers and barriers to EMAS regisration.[1] Examples of driving factors included improvements in resources and production efficiency, provision of stakeholder transparency, requirements of the customer/supply chain and legislative compliance. Perceived barriers to registration reported include costs (estimated average cost for an organization was around €48 000 for the initial year and €26 000 for subsequent years according to the 2009 report; this included the applicant's staff costs to engage with the application), and a lack of financial incentives and regulatory relief.[1]

Table 1 Differences between environmental management systems and environmental standards.

	Environmental management systems	Environmental standards
Aims	A framework to facilitate organizations improve the use of resources and waste management practices	Minimum statutory requirements for the purpose of protecting and maintaining the environment
Voluntary/statutory	Voluntary adoption by organizations	Statutory requirements that organizations have to follow
Registration	Organizations usually have to register with a third party	Does not require registration unless required by legislation
Monitoring	Usually involves periodic audit and/or re-accreditation by third parties for organizations to maintain their EMS accreditation status	Monitored by relevant government departments or regulators
Costs	Organizations usually pay a fee directly to third parties to register and become accredited by an EMS	No direct registration fee payable to government or regulators unless required by legislation
Scope	Organizations can apply for a part of or the full scope of their operations for EMS accreditation	Organizations have to adhere to the full scope of statutory environmental standards
Sanctions for noncompliance with requirements	Possible loss of EMS accreditation status	Enforcement actions may include clean-up notices, fines and imprisonment

EMS, environmental management systems.

Prevalence of environmental management systems in healthcare

The prevalence of EMS in healthcare sector in the UK and internationally has not been systemically examined in the literature. One Spanish study reported that 53 of 210 (25%) hospitals with a dialysis unit in 2012–13 had achieved ISO 14001 accreditation status, and 15 of these further had EMAS accreditation (the scope of EMS accreditation was not stated).[7] In 2020, of the 348 473 ISO 14001 certificates issued from over 170 countries, only 0·3% (1099 of 348 473) certificates were coded for the health and social work sector, and within the UK, 0·016% (2 of 12 141) of ISO 14001 certificates issued in the same year were coded for the health and social work sector. This compared with 3·0% (372 of 12 141) certificates coded for the construction sector and 79% (9582 of 12 141) of certificates coded as 'unknown' sector.[3]

Scope of environmental management systems accreditation

Currently the scope of ISO 14001 accreditation in NHS organizations in the UK appears to be skewed towards accreditation of operations and corporate strategy in estate management, transport, capital planning, procurement, information technology and staff education. The scope of ISO 14001 accreditation among multinational cosmeceutical and pharmaceutical companies appears to be skewed towards the manufacturing process, research and development, and estate management.

Impact of environmental management systems in healthcare

The extent of carbon emissions reduction and cost savings in the healthcare sector directly attributable to EMS has not been examined in the literature. In the case study of Cambridge Memorial Hospital in Canada, which achieved ISO 14001 certification in the late 1990s, the authors stated that there was a 20% reduction in the amount of biomedical waste generated, and a 284% increase in recycling of this waste, 2 years following ISO 14001 certification.[8] A recent article in *Clinical and Experimental Dermatology* described a case example of how a dermatology department performing 1000 punch biopsies/annum may theoretically achieve up to £4810/annum efficiency savings and £16·44/annum savings through optimization of waste-management practices by transitioning to best sustainable practices[9] using the Healthcare Environmental Performance Tool.[10]

Discussion

The level of awareness of EMS among healthcare professionals has not been reported in the literature previously, but is likely to be low. A 2021 survey reported that 2 of 38 (5%) NHS health professionals in paediatrics self-reported having had experience of carbon literacy training[11] but the authors did not define the scope of carbon literacy.

The number of NHS organizations, cosmeceuticals and pharmaceutical companies operating in the UK achieving and maintaining EMS accreditation remains unclear but could potentially be investigated through Freedom of Information requests. EMS have been shown to improve the environmental impact of industries, achieve some cost savings and improve organizational reputation.[1,12] EMS is relevant to dermatology despite the paucity of literature regarding their utility and impact in the healthcare sector. It is possible the impact of EMS relates to the scope of accreditation.

As lack of awareness and costs are important barriers to EMS registration,[1] it is possible that carbon emissions reduction and sustainable services could be delivered by organizations with or without EMS accreditation. The Centre for Sustainable Healthcare in the UK provided case examples of sustainable healthcare initiatives[13] that follow the principles of EMS but without being conducted at organizations with EMS accreditation. For organizations with EMS accreditation status, readers should be aware of the actual scope of the operations to which those organizations' EMS accreditation relates.

Presently, EMS appears to have made some inroads to impact on corporate sustainability strategy in healthcare. The next frontier for EMS to impact upon should be the clinical transformation of individual service models (or care pathways).[2,10,14] However, the costs of EMS accreditation

and the perceived disconnection between nonclinical administrators in management and clinical workforce[15] may threaten the engagement, implementation and utility of EMS at a service model level. The NHS will benefit from a user-friendly, adaptive performance-based system co-designed with staff, offering services and individuals a mean of comparison with known best practices with individualized advisory items to enhance sustainability performance, akin to the Energy Performance Certificate for properties in the UK, which may appeal to the workforce. This could potentially empower individual practitioners to adopt sustainable practices and/or to address the heterogenicity between services (in the case of dermatology minor surgery) such as the environment of procedure rooms, practitioner selection of equipment and consumables,[16] and decisions about procedural steps. Given the prominence of the NHS net zero strategy and the impact of climate change, it is reasonable to speculate that engagement with sustainability EMS could become a performance indicator for organizations, their services and their staff (with implications on revalidation). Further research could assess the environmental impact and cost-effectiveness of EMS in the healthcare sector.

Learning points

- EMS is a framework to facilitate organizations to incorporate environmental considerations into their governance and operations.
- Organizations with EMS accreditation report operational efficiency improvements and cost savings.
- There is a paucity of evidence on the impact of EMS in dermatology and healthcare.
- EMS accreditation in NHS organizations in the UK appears to be skewed towards accreditation of operations and corporate strategy in estate management, transport, capital planning, procurement, information technology and staff education.

Conflict of interest

The author developed the Healthcare Environmental Performance Tool that is cited in this review. The author is a contributor to work described in reference 9, and an author to work described in references 10 and 14.

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Ethics statement

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Data availability

Not applicable as no new data were generated.

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CPD questions

Learning objective

To gain up-to-date knowledge on the scope and utility of environmental management systems.

Question 1

What is the key difference between environmental management systems (EMS) and environmental standards?

(a) EMS is a voluntary framework that organizations can choose to adopt, whereas environmental standards are statutory guidelines that organizations should comply with.
(b) EMS is a voluntary framework that organizations can choose to adopt; whereas environmental standards are guidelines that organizations may choose to comply with or not.
(c) There is an application fee associated with organizations adopting environmental standards whereas it is free for organizations to apply for EMS accreditation.
(d) There is an application fee associated with organizations applying for EMS accreditation and there is an application fee to adopt environmental standards.
(e) Possession of EMS accreditation is a prerequisite to satisfy environmental standards.

Question 2

Which of the following are examples of environmental management systems?

(a) ISO 14001.
(b) Business auditing scheme.
(c) Net Zero Carbon Hospital Standard.
(d) Energy Performance Certificate (EPC).
(e) National Health Service Controls and Assurance System.

Question 3

What is the level of carbon literacy among healthcare professionals?

(a) This has not been systemically examined previously.
(b) 10%.
(c) 23%.
(d) 70%.
(e) 80%.

Question 4

Which of the following statements about environmental management systems (EMS) are correct?

(a) In 2020, there were only two ISO 14001 accreditation certificates issued in the UK for the healthcare and social sector.
(b) Healthcare organizations with EMS accreditation outperform those without EMS in delivering carbon reduction in their services.
(c) EMS accreditation does not require periodic renewal.
(d) It is the responsibility of government bodies to undertake EMS assessment.
(e) EMS accreditation always applies to organization's entire operations.

Question 5

Which of the following is not a driver to adopt environmental management systems (EMS)?

(a) Low cost for accreditation.
(b) Opportunity to improve resources and production efficiency.
(c) To comply with requirements of customers and supply chain.
(d) Legislative compliance.
(e) Stakeholder transparency.

Instructions for answering questions

This learning activity is freely available online at https://oupce.rievent.com/a/UCXLWH
Users are encouraged to

- Read the article in print or online, paying particular attention to the learning points and any author conflict of interest disclosures.
- Reflect on the article.
- Register or login online at https://oupce.rievent.com/a/UCXLWH and answer the CPD questions.
- Complete the required evaluation component of the activity.

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