Plastic waste and environmental pollution
The evidence summary is based on the original summary published in the BDJ\textsuperscript{(1)} (January 2012). It summarises UK primary research studies that explore if plastics used in dentistry act as an environmental pollutant and if their use can be avoided. It does not include detailed descriptions of the studies cited nor does it include information that was not presented in the literature.

The Curious about website encourages dental professionals to raise issues where a review of the available evidence would provide a useful resource for other dental professionals. Where there is a lack of evidence, the topic is considered for research and an award is made available.

These activities are sponsored by the Shirley Glasstone Hughes Fund, a restricted fund within the BDA Trust Fund. The focus of the fund is research into primary care dentistry and aims to generate a body of relevant research for practicing dentists.

Contents

3 Key findings
3 Review questions
3 Key terms
3 The case for action
3 The evidence
4 Methods
4 References
Key findings

- A clear answer cannot be given to this question.
- Dentists might want to consider conducting an environmental audit following the principles of the International Chamber of Commerce to help make more informed decisions in their practice.

Review questions

This evidence summary was prepared in response to the following questions:

- Can plastics used in dentistry act as an environmental pollutant?
- Can we avoid the use of plastics in dental practice?

Key terms

Environmental audit: Defined by the International Chamber of Commerce as ‘a management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment.’

Pollutant: A substance that pollutes something, especially water or the atmosphere.

The case for action

Plastic is a cheap, durable, versatile and widely used material. When it is no longer required dental plastic is disposed of either by incineration, recycling or through landfill in accordance with legislation (HTM 07-01). Managing waste is an essential part of ensuring that dental waste is disposed of safely and the current guidance aims to help dentists identify opportunities to minimise their waste and reduce the environmental and carbon impact of waste management.

Most waste plastics are disposed of in landfill sites and if not properly buried may surface to become ‘debris’. In some cases this debris, or plastic that has not been disposed of responsibly, is carried to alien environments where it can cause serious problems. Incinerating, and in some cases recycling, plastic waste minimises the risk of physical pollution but harmful chemicals and CO₂ can be released contributing to pollution and climate change.

Healthcare waste and its effects on the environment are popular topics. UK hospitals produce approximately 5.5 kg of waste per patient per day with disposal costing £73 million a year. Waste audits and evaluations recognise that the manner in which waste is disposed can be of financial and/or environmental cost. Though high level figures are available for the NHS there is limited data covering the environmental impacts associated with specific service types.

The evidence

There were no relevant publications.

An overview of the environmental policies dentists should consider in their practices, which included plastic waste, was located. It suggests dentists hold an environmental audit to identify ways to improve their strategy to comply with regulators and guidance to protect the environment.

Environmental audit

There were no relevant studies describing the effectiveness of environmental audit in a dental practice. One study assessing dental waste management in a Nigerian tertiary hospital was identified but this did not provide specific data on plastic waste or effectiveness of environmental audit.
Methods

Search strategy
The following databases were searched:

- Ovid MEDLINE (limited to English language articles in dentistry journals)
- Environmental Management database
- CAB database (EBSCO)
- Environment Complete (EBSCO).

Search terms for Ovid MEDLINE were: plastics; environmental pollution; general Practice, Dental; Noise; Waste Management and Dental Waste. A subsequent search to identify studies on environmental audits was conducted.

Articles were included if they discussed or evaluated the use of plastics in a dental practice or interventions that might reduce the use of plastics in a dental practice:

Draft reviews in the library of the Collaboration for Environmental Evidence were screened for relevance.

Searches are current as of March and April 2011.

Results
No relevant articles located.

References