MULTIPLE CHOICE QUESTIONS

1. What percentage of the carbon emissions of the NHS are as a result of procurement activities (based on 2015 activity)?
- (A) 5%
 - (B) 42%
 - (C) 58%
 - (D) 74%

2. What is the likely percentage energy reduction from switching to LED lighting?
- (A) 25%
 - (B) 50%
 - (C) 75%
 - (D) 100%
3. Which is the most common vector-borne disease affecting humans in England and Wales?
- (A) Malaria
 - (B) Dengue fever
 - (C) Monkey pox
 - (D) Lyme disease

Waste not, want not: a case study from veterinary practice

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Healthcare provision generates large volumes of waste separated into multiple waste streams, which we are legally obliged to process in different ways. Around 3–6 kg of medical waste is produced daily per hospital bed, and audits of medical waste from anaesthetic rooms suggest that 40–60% of this waste can be recycled. However, healthcare waste streams are also likely to produce hazardous waste, which has the potential to be toxic to our environment and the lifeforms within it. It is also around ten times more costly to dispose of. Much of the waste that is produced is single-use, with a high proportion of mixed and hard-to-recycle plastics. There is often a conflict with infection-control practices, which requires ongoing evidence-based assessment to decide on the least resource-intensive approach. In addition, there are limits on capacity for waste disposal in the UK at present, which places an onus on waste producers to manage the volume of their waste at source.

From NHS England data (and our own data from Davies Veterinary Specialists), we know that waste disposal does not contribute a large proportion of the total carbon emissions of a healthcare facility. However, procurement of materials and equipment, in particular pharmaceuticals, accounts for around 60% of total NHS England carbon emissions. Therefore, the true cost of the lifecycle of a product, process or piece of equipment must be considered. The 2012 Waste Regulations provides us with a useful (and legally binding) concept in the waste hierarchy, which provides a pyramid of opportunities for reducing the environmental impact of waste. The first and most important step is prevention of initial waste production.

However, achieving legally compliant, environmentally friendly and resource-efficient changes can be challenging in the clinical environment. Concerns around meeting strict legal controls, combined with confusing definitions of waste types, can lead to errors in segregation of waste on site. Careful and ongoing training of all staff involved in waste handling is required to maximize compliance, which should also minimize environmental impacts.

As extraction of raw materials results in increasingly scarce resources, we should also look to the circular economy. Indeed, all waste should be seen as having a potential material value. Production mass intensity metrics indicate that 1 kg of drug takes up to 40 kg of resource to produce. Analysis of this sort allows us to judge the true cost of drugs.

The future looks likely to need robust audit and reduction in waste volumes per patient, better segregation of wastes produced in a healthcare setting and better communication between waste producers and waste reproducers to support the circular economy.

KEY LEARNING OBJECTIVES

- The most important step in waste management is to reduce resource consumption
- Waste derived from any healthcare facility should be divided into multiple streams, of which over half is likely to be non-hazardous and is potentially recyclable
- Legally compliant waste segregation requires careful education and training of staff

MULTIPLE CHOICE QUESTIONS

1. What should be done with offensive waste, such as waste contaminated with urine, blood or faeces?
- (A) Should be placed into a yellow and black (tiger-striped) bag
 - (B) Can never be recycled as it is contaminated
 - (C) Should always be incinerated
 - (D) Should be placed into an orange or yellow bag with other types of hazardous clinical (infectious) waste
2. As a proportion of total carbon emissions in the NHS (2017), what does procurement of medical equipment and pharmaceuticals contribute?
- (A) 0.1%
 - (B) 1%
 - (C) 15%
 - (D) 25%
3. What is the first step in the waste hierarchy?
- (A) Prevention
 - (B) Recycling
 - (C) Re-use
 - (D) Alternative recovery, such as incineration with energy for recovery