

## Environmentally Sustainable Primary Care

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### Quiz 3

1. If you do the same journey by bike, on foot or in a car, which one of these people gets the highest exposure to air pollution?
- A The driver of a diesel or petrol vehicle
  - B The cyclist
  - C The walker
  - D The driver of an EV

Answer **A** The driver of an Internal Combustion Engine vehicle

The driver has the worst air quality. Concentrations of air pollutants in cars can be considerably higher than concentrations faced by active travellers. Commuters sitting in cars both miss the benefits of physical activity, and the concentration of pollutants from outside and from their own proximity to an engine builds up in the cabin.

Chapter 1 p3

2. The UK's highest income households consume on average which one of the following?
- A 25% more tonnes of oil equivalents as the lowest 5 %
  - B 50% more tonnes of oil equivalents as the lowest 5%
  - C 100% more (i.e. doubled) tonnes of oil equivalents as the lowest 5%
  - D 200% more (i.e. tripled) tonnes of oil equivalents as the lowest 5%

Answer **D**

Inequality in consumption is a major feature of a very uneven current UK society. The impacts of climate change, including on their health, are disproportionately felt by the poorest.

Chapter 1 p9-10

3. The proportion of the NHS' carbon footprint that is due to medication (including anaesthetics and metered dose inhalers) is which one of the following?
- A 7%
  - B 12%
  - C 18%
  - D 25%
  - E 35%

Answer **D** 25%

20% for medicines + chemicals & 5% for anaesthetics + MDIs; Chapter 1 p11

4. Which one of the following dental prevention programmes has the lowest environmental impact?
- A Attendance at a dental hygienist
  - B Fluoridation of the local water supply
  - C Regular checks and polishes with your dentist
  - D Toothbrushing with an electric toothbrush

Answer **B**

Fluoridation has the lowest environmental impact compared to other community level dental prevention programmes. Toothbrushing with electric toothbrushes has not been demonstrated to be more effective environmentally than normal toothbrushing (and bamboo toothbrushes are not better than normal plastic ones for the environment). Chapter 2 p14

5. **True or false.** In dentistry, the evidence for single use plastics (SUP) over multi-use instruments does not clearly demonstrate advantages for SUP

Answer **True**

The move to SUP is generated by an impression that it is better without clear evidence for this. Chapter 2 p15-16

6. The average UK household generates 412 Kg of waste per person each year. The waste generated by full-time contact lens wearers represents which of the following proportions of that?
- A 0.01%
  - B 0.2%
  - C 1%
  - D 1.5%

Answer **B**

Full-time contact lens wear represents just 0.20%–0.26% of the 412 kg of household waste generated per person per year in the United Kingdom. Chapter 4 p44

7. An estimated 1.14 billion prescription items were dispensed in England in 2021/2022. How much has this changed compared to 2014/2015?
- A Reduced by 4.6%
  - B No significant change
  - C Increased by 3.3%
  - D Increased by 6.4%

Answer **D**

An increase 6.4% from 1.07 billion items in 2014/2015. Prescribing is a major part of the carbon footprint of the NHS so reducing prescribing needs to be achieved to bring the total carbon footprint of the NHS on track. This is clearly going to be harder to achieve in the context of a 6.4% increase in overall prescribing of items over these 7 years.

Chapter 5 p 54-55. Looking at this with different statistics in 1996 the average number of prescriptions per head was 10 by 2016 this had doubled. Chapter 7.

8. How often, according to studies, is medication not taken as intended?
- A Less than 10%
  - B 10-20%
  - C 20-30%
  - D Over 30%

Answer **D**

Research has found that between 30% and 50% of medication is not taken as intended. Evidence also suggests that people experiencing health inequalities are both less likely to seek help and advice and more likely to be prescribed medication inappropriately. Chapter 5 p 55

9. **True or false.** Considering pharmaceuticals in the environment which of the following are true?
- A About 20% of oral medicines are excreted in the urine
  - B About 30-90% of oral medicines are excreted in the urine
  - C Pharmaceuticals are easily removed by normal Water Treatment plants (sewage works)
  - D Antibiotics are found unchanged in rivers and coastal areas from human excretion
  - E The commonest pharmaceuticals in the UK's rivers are paracetamol and codeine

Answer **B, D and E are True**

Between 30% and 90% of medicines taken orally are excreted and enter the waterways as "pharmaceuticals in the environment" (PIE) These drug residues are not removed by wastewater treatment plants and have known antimicrobial resistance (AMR) and possibly other unknown environmental impacts Chapter 5 p60 and Chapter 14

10. **True or false.** You need to prove your address to register with a GP.

Answer **False**

GPs can accept patients without proof of address and can also refer those who are not accepted for hospital services on to practice attached mental health services or other practice-based services. Chapter 6 p73

11. 75% of UK rivers were assessed as posing a serious risk to human health in 2022. Which of the following are found in UK rivers?
- A Insecticides (imidacloprid)
  - B Antibiotics
  - C NSAIDs
  - D Oestrogens
  - E Nanoparticles

**All** are found in UK rivers.  
Chapter 6 p78

12. **True or false.** Taking a lot of medication is commoner as people age. Which of the following is or are true?
- A 30% of people over the age of 70 take 5 or more medications
  - B 50%+ of people over the age of 70 take 5 or more medications
  - C 70% of people over the age of 70 take 5 or more medications
  - D approximately 40% of those over 80 take 8 medications or more
  - E Those living in the most deprived communities are at least twice as likely to receive 8 or more medicines as those in the least deprived communities

Answer - True **B D and E**

Over half of all people over 70 take 5 or more different medications. Around 40% of people over 80 take 8 or more. Consumption of medications to prevent or manage chronic diseases is a very significant part of modern life. Those living in deprived communities are more likely to have more chronic illnesses, (but also probably more likely to be on more medications too). Chapter 7 p91

13. Carrying out a medication review is sometimes seen as a box ticking exercise but can also be an opportunity to maximise benefits and reduce harm to patients. Which one or more of the following are recommended for medication review?
- A No Tears
  - B 7 steps approach
  - C Identification of higher risk medications e.g. those that can cause AKI
  - D Measuring the ACB
  - E PharmIT

Answer **A, B, C, D**

PharmIT is an imagery assessment tool. Chapter 7 p 95-8

14. Which of the following is *not* a principle of lifestyle medicine?
- A Eat well
  - B Avoid harmful substances
  - C Control BP
  - D Increase physical activity
  - E Develop healthy relationships

Answer **C**

Common factors in lifestyle medicine principles include eat well, sleep, avoid harmful substances, increase physical activity, use processes to reduce stress, develop healthy relationships. Controlling BP (with drugs) is not lifestyle medicine but risk factor management by clinicians. Chapter 8 p110-114

15. **True or false.** When looking at Sus QI and sustainable clinical care the following are true?
- A The equation and the triple bottom line describing Sus QI is a mathematical one
  - B It's important to start by looking at switching to low carbon alternatives before looking at broad brush areas like Prevention
  - C Sus QI is compatible with most other QI approaches but makes Quality improvement able to look at a more complete or holistic context
  - D To achieve rapid progress in QI it is better to have a 1–2-person approach rather than aiming to involve patients or members from across the staff team who are likely to be implicated

Answer **C**

The whole of chapter 9 covers this area.

16. For which of the following is there evidence of a link to Air Pollution? (Y or N)

Low birthweight babies  
Premature birth  
Childhood asthma  
Delayed lung development in children  
Developmental delay  
Eczema and atopic dermatitis  
More episodes of wheezing and cough in childhood  
Atherosclerosis in Childhood  
Development of Ischaemic heart disease  
CVA  
Lung cancer  
COPD  
Diabetes (adult onset)  
Dementia  
ADHD  
Contact Deficient Hyper-Zooming Disorder  
Macular degeneration  
Cataracts  
Rhinitis

Answer There is a link to **all of them apart from Contact Deficient Hyper-zooming disorder** (which has not been defined as a disorder!)

Chapter 11 p160

17. **True or false.** The NHS has divided its carbon footprint into different 'scopes' (from 1-3) and has different target dates for achieving reduction in these. Which of the following statements are true?
- A Medication prescribed in primary care would be classified as Scope 2
  - B The practice bill for the gas central heating is scope 2
  - C The travel costs for clinical workers to get to work are scope 1
  - D The NHS target is for 90% reduction in Scope 1 and 2 by 2040
  - E The NHS target for scope 3 is by 2045

Answers **D and E** are true.

Medication is classified as scope 3, the heating bill relates to either gas used on the NHS premises (Scope 1) (though if the practice used electricity for its heating this would be scope 2!). Getting to work would be scope 3 and in primary care there are effectively no vehicles working on site so there are no scope 1 primary care vehicle emissions normally. Chapter 12 p176

18. **True or false.** Air pollution includes a mixture of different compounds which have different sources. Which of the following is or are true in the UK?
- A The biggest cause of PM2.5 by far is residential or small scale burning particularly in fires and solid fuel stoves
  - B Most of nitrogen oxides come from the energy industry
  - C Though the biggest cause of sulphur dioxides is the energy industry, the second biggest cause is residential burning
  - D Almost 90% of ammonia comes from agriculture

Answers True **A, C and D**

Most of the nitrogen oxides come from road transport. Chapter 13 p195

19. What proportion of the world's population is affected by freshwater scarcity?
- A 4%
  - B 24%
  - C 40%
  - D 64%

Answer **C**

40% of the world's population face water scarcity with about 700m people at risk of being displaced by drought. Chapter 14 p 208

20. Which of the following uses most land in the UK?
- A Solar farms
  - B Christmas tree growing
  - C Golf courses

Answer **C**

Golf courses at around 2% compared to (2022 data) 0.6% for solar (includes intended or planned solar) <https://commonslibrary.parliament.uk/research-briefings/cbp-7434/#:~:text=The%20updated%20national%20policy%20statement,solar%20farms%20on%20agricultural%20land>. Chapter 15

21. **True or false.** Which of the following statements about soil is or are true?
- A 75% of land-based organisms live in soil
  - B The mycorrhizal network moves energy between plants (including those of different species)
  - C Carbon is stored in soil in vast quantities often linked by glomalin
  - D The damage to soil is a separate issue from the loss of insect and bird biodiversity
  - E There are close parallels between the soil biome and the human gut microbiome

Answer **B C and E** are true.

90% of land-based organisms live in soil. There is a close link between soil quality and insect and other terrestrial biodiversity. Chapter 15 p 223-4