# Appendix.

This appendix explains how the carbon footprints, costs, and carbon intensity values were computed for cataract surgery and renal failure that were used for the scenario sensitivity analysis.

## Cataract Surgery

Morris et al. (2013) performed a component analysis of the care pathway for 2,230 cataract patients in the University Hospital of Wales, Cardiff and estimated the carbon footprint of cataract extraction surgery for the first eye as 181.8 kgCO2e per patient (see their Table 2). Davies et al. (2012) reported, in Table A1 of their Supporting Information, that cataract extraction surgery cost £1,740 based on information presented in Clark et al. (2003).

The carbon intensity of cataract surgery is, therefore, 181.8 kgCO2e/£1,740 = 0.104 kgCO2e/£ if we assume that the costs presented in Davies et al. and Clark et al. correspond to surgery for one eye.

## Renal Failure

Connor et al. (2010) also performed a component analysis of care delivered to 279 patients in the Dorset Renal Service in the United Kingdom and estimates the carbon footprints for haemodialysis and peritoneal dialysis and outpatient and inpatient services. We combined those data to derive the average total annual carbon footprint per renal patient (10,613.95 kgCO2e) as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Resources Used** | **Source** | **kg CO2e** | **Units** | **kg CO2e per Unit** | **Units per Patient** | **kg CO2e per Patient** |
| Dialysisa | Table 7 | 1,965,305 | 279 patients | 7,044.10 | 1.0b | 7,044.10 |
| Outpatient | Table 8 | 171,971 | 7,800 visits | 22.05 | 28.0c | 616.38 |
| Inpatient | Table 9 | 824,016 | 5,110 bed days | 161.26 | 18.3d | 2,953.46 |
|  |  |  |  |  | **TOTAL:** | **10,613.95** |
| aBoth haemodialysis and peritoneal.  bOne unit used because it corresponds to a year’s worth of dialysis services.  cDerived from 7,800 visits per 279 patients.  dDerived from 5,110 bed days per 279 patients. | | | | | | |

Davies et al. (2012) reported, in Table A1 of their Supporting Information, that haemodialysis costs £27,863 per year and peritoneal dialysis costs £20,920 per year. Using the distribution of patients receiving hemodialysis (225/279) and peritoneal dialysis (54/279) reported in Conner et al., we calculated a weighted average cost of care for renal failure patients of £26,519.

The carbon intensity of renal failure is, therefore, 10,613.95 kgCO2e/£26,519 = 0.400 kgCO2e/£.

## References

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