SUPPLEMENTARY FILE 2
ESTIMATED NATIONAL HEALTH SERVICE EXPENDITURE

Cardiovascular disease (CVD), type 2 diabetes, lung cancer, colon cancer, and endometrial cancer are associated with sedentary behaviour. Table 1 contains the estimated gross expenditure for each disease in each UK country. Detailed information on how each estimate was calculated is given below.

Table 1. Gross expenditure on diseases associated with sedentary behaviour in the UK

	Gross expenditure (£million, 2016-17) by country				
Disease	England[1]	Scotland[1]	Wales	Northern Ireland[2]	UK Total
Type 2 diabetes	£1,437.66	£88.07	£100.18	£41.69	£1,667.60
CVD	£7,177.39	£838.19	£468.90	£244.41	£8,728.88
Lung cancer	£179.77	£50.19	£17.52	£6.87	£254.35
Colon cancer	£251.84	£44.24	£32.14	£8.86	£328.22
Endometrial cancer	£71.10	£9.25	£7.82	£2.54	£90.71

CVD = cardiovascular disease. [1]Costs inflated to 2016/17 costs from 2013/14 costs (England) and 2011/12 costs (Scotland) using HCHS index. [2]Northern Irish costs estimated based on prevalence and incidence rates in comparison with rest of UK.

Diabetes

Type 2 diabetes accounts for 90% of diabetes cases, so we multiplied the total diabetes expenditure by 0.9 to estimate the costs of type 2 only.[1] The cost of type 2 diabetes in the England, Scotland, and Wales was £1.4 billion, £88 million, and £100 million respectively. New cases of diabetes in Northern Ireland in 2015 accounted for 2.5% of new cases in the UK.[2] Therefore, using the gross expenditure for diabetes in England, Scotland, and Wales, an estimate of £42 million was calculated for Northern Irish expenditure. The total UK expenditure on type 2 diabetes was estimated at £1.7 billion for 2016/17.

Cardiovascular disease

The category, 'Problems of circulation', in the Programme Budgeting Data disease groupings was chosen to represent the cost of cardiovascular disease. The cost of CVD in the England,

Scotland, and Wales was £7.1 billion, £8.4 billion, and £469 million respectively. The number of people diagnosed with cardiovascular disease in Northern Ireland accounted for 2.8% of all diagnoses in the UK in 2017.[3] Therefore, using the gross expenditure for CVD in England, Scotland, and Wales, an estimate of £245 million was calculated for Northern Irish expenditure. Total expenditure in the UK was estimated to be £8.7 billion.

Lung cancer

The gross expenditure on lung cancer was £180 million in England and £50 million in Scotland. Only the total expenditure on all cancers was available in Wales. Expenditure on lung cancer was assumed to be similar to England, therefore total cancer spending in Wales was multiplied by the same proportion. New cases of lung cancer in Northern Ireland in 2015 accounted for 2.7% of new cases in the UK.[4] Therefore, using the gross expenditure for diabetes in the rest of the UK, NI expenditure was estimated to be £9 million. Total lung cancer expenditure in the UK was estimated to be £328 million.

Colon cancer

The cost of lower gastrointestinal cancers was assumed to equal the cost of colorectal cancers. The cost of colon cancer was estimated by multiplying the total cost of colorectal cancers by 65.7%, as colon cancer accounts for 65.7% of colorectal cancer incidence.[4] The gross expenditure on colon cancer was £252 million in England and £44 million in Scotland. Only the total expenditure on all cancers was available in Wales. Expenditure on lower gastrointestinal cancers was assumed to be similar to the proportion of spending in England, and so, spending in Wales was estimated at £32 million. New cases of colon cancer in Northern Ireland in 2015 accounted for 2.7% of new cases in the whole UK.[4] Total colon cancer expenditure in the UK was estimated to be £328 million.

Endometrial cancer

Endometrial cancer accounts for 42.9% of gynaecological cancer incidence in the UK.[4] Hence, we estimated the cost of endometrial cancer by multiplying the cost of overall gynaecological cancers by 42.9%.Endometrial cancer cost £71 million and £9 million in England and Scotland respectively. The Welsh data only provided the cost of all cancers, so we assumed that gynaecological cancer spending would be similar to England.Therefore total cancer spending in Wales was multiplied by the same proportion, giving £8 million. New cases of endometrial cancer in Northern Ireland in 2015 accounted for 2.8% of new cases in the

UK.[4] Therefore, Northern Irish expenditure was estimated to be £3 million. Total endometrial cancer expenditure in the UK was estimated to be £91 million.

REFERENCES

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4. Cancer Research UK. *Cancer Statistics for the UK [Internet]*. 2018. Available from: http://www.cancerresearchuk.org/health-professional/cancer-statistics-for-the-uk (Accessed Sep 2018)