**Supplementary Table 1  Counts and ASR for new HNCs by stage at diagnosis by variables available**

|                     | Numbers of cases by stage | ASR by stage |
|---------------------|---------------------------|--------------|
|                     | I  | II | III | IV | Unknown | I  | II | III | IV | Unknown |
| England             |    |    |     |    |         |    |    |     |    |         |
| Subsite all years available |    |    |     |    |         |    |    |     |    |         |
| Oral cavity cancer (OCC) | 4511 | 1904 | 1200 | 5782 | 6509 | N/A | N/A | N/A | N/A | N/A |
| Oropharyngeal cancer (OPC) | 1298 | 1554 | 2914 | 13690 | 7660 | N/A | N/A | N/A | N/A | N/A |
| Larynx              | 4144 | 2068 | 2100 | 3173 | 6281 | N/A | N/A | N/A | N/A | N/A |
| Other               | 9313 | 2845 | 3181 | 7150 | 24515 | N/A | N/A | N/A | N/A | N/A |
| All HNC             | 19266 | 8371 | 9395 | 29795 | 45010 | N/A | N/A | N/A | N/A | N/A |
| Year                |    |    |     |    |         |    |    |     |    |         |
| 2008                | 193 | 103 | 114 | 272 | 6979 | 0.4 | 0.2 | 0.2 | 0.5 | 10.7 |
| 2009                | 211 | 116 | 107 | 331 | 7368 | 0.5 | 0.3 | 0.2 | 0.7 | 12.5 |
| 2010                | 308 | 162 | 184 | 450 | 7614 | 0.6 | 0.3 | 0.4 | 1.0 | 11.2 |
| 2011                | 841 | 402 | 395 | 1267 | 6131 | 1.7 | 0.9 | 0.8 | 2.7 | 10.4 |
| 2012                | 1233 | 585 | 722 | 2068 | 5065 | 2.5 | 1.2 | 1.5 | 4.3 | 9.2 |
| 2013                | 1784 | 906 | 1007 | 3160 | 3435 | 3.5 | 1.8 | 2.1 | 6.4 | 6.2 |
| 2014                | 2277 | 1034 | 1159 | 3736 | 2212 | 4.5 | 2.1 | 2.3 | 7.5 | 3.9 |
| 2015                | 2732 | 1195 | 1432 | 4368 | 1682 | 5.3 | 2.4 | 2.8 | 8.6 | 2.9 |
| 2016                | 2853 | 1247 | 1417 | 4796 | 1574 | 5.4 | 2.4 | 2.7 | 9.3 | 2.7 |
| 2017                | 3133 | 1298 | 1463 | 4834 | 1425 | 5.9 | 2.5 | 2.8 | 9.3 | 2.4 |
| 2018                | 3701 | 1323 | 1395 | 4513 | 1525 | 6.9 | 2.5 | 2.7 | 8.6 | 2.5 |
| Northern Ireland    |    |    |     |    |         |    |    |     |    |         |
| Subsite all years available |    |    |     |    |         |    |    |     |    |         |
| OCC                 | 181 | 79 | 58 | 327 | 156 | N/A | N/A | N/A | N/A | N/A |
| Year | OPC | Larynx | Other | All HNC | Scotland |
|------|-----|--------|-------|---------|-----------|
| 2009 | 241 | 161 | 72 | 1276 | N/A |
| 2010 | 46 | 145 | 268 | 125 | N/A |
| 2011 | 41 | 179 | 64 | 81 | N/A |
| 2012 | 59 | 71 | 96 | 440 | N/A |
| 2013 | 41 | 103 | 64 | 88 | N/A |
| 2014 | 64 | 71 | 96 | 81 | N/A |
| 2015 | 61 | 125 | 64 | 141 | N/A |
| 2016 | 61 | 120 | 171 | 121 | N/A |
| 2017 | 70 | 171 | 169 | 110 | N/A |
| 2018 | 70 | 120 | 169 | 110 | N/A |

| Scotland |
|----------|
| Subsite all years available | OCC | OPC | Larynx | Other | All HNC | Year |
| 2016 | 207 | 83 | 203 | 57 | 614 | 207 |
| 2017 | 205 | 86 | 128 | 67 | 402 | 205 |
| 2018 | 202 | 182 | 169 | 76 | 537 | 202 |
| Sex            | Men    | 403 | 289 | 389 | 1006 | 496 | 5.4 | 3.8 | 5.1 | 13.3 | 6.7 |
|----------------|--------|-----|-----|-----|------|-----|-----|-----|-----|------|-----|
| Women          |        | 211 | 113 | 148 | 380  | 224 | 2.5 | 1.3 | 1.7 | 4.4  | 2.6 |
| SIMD Category  | SIMD1  | 155 | 114 | 165 | 430  | 226 | 5.6 | 4.1 | 5.9 | 15.4 | 8.2 |
| SIMD2          |        | 125 | 102 | 120 | 319  | 152 | 4.0 | 3.3 | 3.9 | 10.4 | 5.1 |
| SIMD3          |        | 145 | 68  | 99  | 269  | 148 | 4.4 | 2.1 | 3.0 | 8.1  | 4.5 |
| SIMD4          | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| Age            | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 0 to 4         | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 5 to 9         | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 10 to 14       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 15 to 19       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 20 to 24       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 25 to 29       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 30 to 34       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 35 to 39       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 40 to 44       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 45 to 49       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 50 to 54       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 55 to 59       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 60 to 64       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 65 to 69       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 70 to 74       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
| 75 to 79       | SIMD5  | 107 | 68  | 80  | 209  | 114 | 3.2 | 2.0 | 2.4 | 6.4  | 3.4 |
|                | OCC | OPC | OCC + OPC | Year | All HNC |           | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Sex  |
|----------------|-----|-----|-----------|------|---------|-----------|------|------|------|------|------|------|------|------|
| 80 to 84       | 45  | 26  | 23        | 90   | 64      | 10.9      | 6.3  | 5.5  | 21.7 | 15.4 |
| 85 to 89       | 19  | 9   | 14        | 42   | 23      | 7.9       | 3.8  | 5.8  | 17.5 | 9.6  |
| Over 90        | 5   | 6   | 5         | 22   | 19      | 4.0       | 4.8  | 4.0  | 17.6 | 15.2 |
| Wales          |     |     |           |      |         |           |      |      |      |      |      |      |      |      |
| Subsite all years available |     |     |           |      |         |           |      |      |      |      |      |      |      |      |
| OCC + OPC      | 424 | 280 | 153       | 1210 | 410     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Larynx         | 329 | 185 | 244       | 296  | 114     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Year           | All HNC | 858 | 623       | 601  | 2567    | 821       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2011           | 98  | 54  | 69        | 242  | 129     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2012           | 109 | 85  | 48        | 280  | 102     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2013           | 85  | 90  | 46        | 311  | 142     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2014           | 85  | 78  | 74        | 324  | 105     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2015           | 97  | 85  | 79        | 334  | 110     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2016           | 124 | 79  | 85        | 363  | 63      | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| 2017           | 133 | 71  | 100       | 374  | 73      | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Sex            | 2018| 127 | 81        | 100  | 339     | 97        | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Men            | 573 | 418 | 447       | 1895 | 550     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| Women          | 285 | 205 | 154       | 672  | 271     | N/A       | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |