**Table** **S1. Number of newly diagnosed cases of abdominal cancer, weeks of sustained increase and additional cancers diagnosed in the campaign region (all abdominal sites, and stratified by abdominal sites) and the control area (all abdominal sites)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **No. of weeks sustained increase** | |  | **Number of expected cancers (median)** | |  | **Number of additional cancers** | |  |
|  | **Age 50+** | **All ages** | | **Age 50+** | **All ages** | | **Age 50+** | **All ages** | |
| **All abdominal** | 5 | 7 | | 1,388 | 2,076 | | 97 | 172 | |
| **Colorectal** | 8 | <5 | | 1,056 | - | | 61 | - | |
| **Pancreas** | 9 | 8 | | 284 | 297 | | 102 | 101 | |
| **Stomach** | 6 | 6 | | 126 | 132 | | 17 | 23 | |
| **Kidney** | <5 | 8 | | - | 320 | | - | 51 | |
| **Oesophageal** | <5 | <5 | | - | - | | - | - | |
| **Ovarian** | <5 | <5 | | - | - | | - | - | |
| **Control area (all abdominal)** | 10 | 6 | | 2,225 | 1,684 | | 226 | 176 | |

Note: where no data shown (-) there was no sustained increase of 5 weeks or more, therefore no calculation of additional cancers

**Table S2. Regional campaign: presentations per GP practice per week for patients of all ages**

|  |  |
| --- | --- |
| **Presentations per practice per week (adjusted**†**)** | |
| **Campaign symptoms** | **12-week period** | **2015/16** | **2016/17** | **Change**  **(2016/17 vs 2015/16)** | **% Change**  **(2016/17 vs 2015/16)** | ***P*-value** |
| Bloating | Pre-campaign  Campaign  Post-campaign | 0.87  0.74  0.84 | 0.67  1.09  0.98 | 0.20  0.35  0.14 | **-23.2**  **46.5**  15.8 | **0.011**  **<0.001**  0.159 |
| Diarrhoea | Pre-campaign  Campaign  Post-campaign | 4.12  4.57  4.28 | 4.65  4.98  5.09 | 0.53  0.41  0.81 | **12.7**  8.9  **19.0** | **0.006**  0.076  **<0.001** |
| Discomfort | Pre-campaign  Campaign  Post-campaign | 11.95  11.50  10.64 | 11.56  11.75  11.34 | -0.39  0.25  0.70 | -3.2  2.1  **6.5** | 0.223  0.501  **0.035** |
| Combined abdominal symptoms | Pre-campaign  Campaign  Post-campaign | 16.91  16.77  15.67 | 16.84  17.75  17.42 | -0.07  0.98  1.75 | -0.4  **5.8**  **11.1** | 0.852  **0.026**  **<0.001** |
| Control symptom (back pain) | Pre-campaign  Campaign  Post-campaign | 12.56  13.41  11.85 | 11.98  12.33  12.50 | -0.58  -1.08  0.73 | -4.6  **-8.0**  5.5 | 0.068  **0.005**  0.061 |

Pre-campaign period: 12 weeks from 21 November 2016. Campaign period: 9 weeks from 13 February 2017. Post-campaign period: 12 weeks from 17 April 2017.

Results in bold indicate a statistically significant change between 2016 and 2017 (likelihood ratio test of two counts; *P*<0.05)

† analysis based on ISO week, adjusted for a 5-day working week excluding bank holidays

**Table S3: Number of urgent GP referrals for suspected abdominal cancers combined, and for suspected gynaecological, urological, upper GI and lower GI cancers for people of all ages in the regional campaign and control areas**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Referral type** | **Area** | **Year** | **February - April** | | | | |
| **Referrals**  **All ages** | **% change in number** | **P-value\*** | **Referral rate** | |
| **Estimate** | **95% CI** |
| Abdominal (four referral types combined) | Regional campaign | 2016 | 42,395 | 7.6 | **<0.001** | 1,738.1 | (1,721.5, 1,754.9) |
| 2017 | 45,605 | 1,923.9 | (1,906.1, 1,941.7) |
| Control | 2016 | 32,769 | 0.0 | 0.950 | 1,584.0 | (1,566.8, 1,601.4) |
| 2017 | 32,785 | 1,630.4 | (1,612.6, 1,648.2) |
| Gynaecological | Regional campaign | 2016 | 8,318 | 5.6 | **<0.001** | 326.3 | (319.3, 333.4) |
| 2017 | 8,786 | 355.1 | (347.6, 362.6) |
| Control | 2016 | 5,906 | -1.2 | 0.512 | 272.0 | (265.1, 279.0) |
| 2017 | 5,835 | 277.3 | (270.2, 284.5) |
| Urological | Regional campaign | 2016 | 10,556 | -2.2 | 0.115 | 448.9 | (440.3, 457.6) |
| 2017 | 10,328 | 452.2 | (443.4, 461.0) |
| Control | 2016 | 8,691 | -9.2 | **<0.001** | 438.9 | (429.6, 448.3) |
| 2017 | 7,888 | 409.8 | (400.8, 419.0) |
| Upper GI | Regional campaign | 2016 | 10,235 | 4.8 | **<0.001** | 417.9 | (409.8, 426.2) |
| 2017 | 10,723 | 451.3 | (442.7, 460.0) |
| Control | 2016 | 7,322 | -1.2 | 0.471 | 352.1 | (344.0, 360.3) |
| 2017 | 7,235 | 357.2 | (348.9, 365.6) |
| Lower GI | Regional campaign | 2016 | 13,286 | 18.7 | **<0.001** | 545.0 | (535.7, 554.4) |
| 2017 | 15,768 | 665.4 | (654.9, 675.9) |
| Control | 2016 | 10,850 | 9.0 | **<0.001** | 521.1 | (511.2, 531.1) |
| 2017 | 11,827 | 586.1 | (575.5, 596.8) |

\* p-values from a likelihood ratio test; significant results for increases shown in bold

**Chart

Description automatically generated**

**Figure S1: Number of newly diagnosed cases of abdominal cancer by week, October 2016 to September 2017, for patients 50 years and over in the campaign and control areas**

**Read codes used in the analysis for number of GP attendances** for abdominal symptoms and a control symptom (back pain) were sourced from The Health Improvement Network (THIN) database.

|  |  |
| --- | --- |
| **Diarrhoea** | |
| **Code** | **Description** |
| 19EA.00 | Change in bowel habit |
| 19EA.11 | Altered bowel habit |
| 19EE.00 | Increased frequency of defaecation |
| 19F..00 | Diarrhoea symptoms |
| 19F..11 | Diarrhoea |
| 19F..12 | Loose stools |
| 19F2.00 | Diarrhoea |
| 19F3.00 | Spurious (overflow) diarrhoea |
| 19FZ.00 | Diarrhoea symptom NOS |
| 19FZ.11 | Diarrhoea & vomiting, symptom |
| 19G..00 | Diarrhoea and vomiting |
| A074011 | Diarrhoea due to staphylococcus |
| A074012 | Diarrhoea due to staphylococcal toxin |
| A074111 | Diarrhoea due to Pseudomonas pyocyanea |
| A074311 | Diarrhoea due to Campylobacter jejuni |
| A076.11 | Viral diarrhoea |
| A082.00 | Infectious diarrhoea |
| A082.11 | Travellers' diarrhoea |
| A082000 | Dysenteric diarrhoea |
| A082100 | Epidemic diarrhoea |
| A082z00 | Infectious diarrhoea NOS |
| A083.00 | Diarrhoea of presumed infectious origin |
| A083.11 | Diarrhoea & vomiting -? infect |
| Ayu0H00 | [X]Diarrhoea+gastroenteritis of presumed infectious origin |
| E264300 | Psychogenic diarrhoea |
| E264311 | Spurious diarrhoea |
| Eu45317 | [X]Psychogenic diarrhoea |
| J4...13 | Noninfective diarrhoea |
| J432.11 | Allergic diarrhoea |
| J433.11 | Dietetic diarrhoea |
| J43z.11 | Chronic diarrhoea |
| J4z..11 | Presumed noninfectious diarrhoea |
| J4zz.11 | Diarrhoea - presumed non-infectious |
| J521000 | Irritable bowel syndrome with diarrhoea |
| J524000 | Diarrhoea after gastrointestinal tract surgery |
| J525.00 | Functional diarrhoea |
| R077100 | [D] Stools loose |
| R078.00 | [D]Change in bowel habit |

|  |  |
| --- | --- |
| **Bloating** | |
| **Code** | **Description** |
| 19A..00 | Abdominal distension symptom |
| 19A2.00 | Abdomen feels bloated |
| 19A3.00 | Abdomen feels distended |
| 19A4.00 | Abdomen feels swollen |
| 19AZ.00 | Abd. distension symptom NOS |
| 19B..12 | Bloating symptom |
| R073300 | [D]Abdominal distension, gaseous |
| R073400 | [D]Bloating |

|  |  |
| --- | --- |
| **Discomfort** | |
| **Code** | **Description** |
| 196..00 | Type of GIT pain |
| 196..11 | Abdominal pain type |
| 196..12 | Type of GIT pain - symptom |
| 1962.00 | Colicky abdominal pain |
| 1963.00 | Non-colicky abdominal pain |
| 1968.00 | Abdominal discomfort |
| 1969.00 | Abdominal pain |
| 1969000 | Abdominal wall pain |
| 196B.00 | Painful rectal bleeding |
| 196Z.00 | Type of GIT pain NOS |
| 197..00 | Site of GIT pain |
| 197..11 | Flank pain |
| 197..12 | Iliac fossa pain |
| 197..13 | Site of abdominal pain |
| 1971.00 | Central abdominal pain |
| 1972.00 | Epigastric pain |
| 1975.00 | Left flank pain |
| 1976.00 | Right flank pain |
| 1977.00 | Right iliac fossa pain |
| 1978.00 | Left iliac fossa pain |
| 1979.00 | Suprapubic pain |
| 197A.00 | Generalised abdominal pain |
| 197A.11 | General abdominal pain-symptom |
| 197B.00 | Upper abdominal pain |
| 197C.00 | Lower abdominal pain |
| 197D.00 | Right upper quadrant pain |
| 197Z.00 | Site of GIT pain NOS |
| 1984.00 | Upset stomach |
| 1984.11 | Upset tummy |
| 19EC.00 | Painful defaecation |
| 1A53.11 | C/O - loin pain |
| 1A53.13 | C/O - renal pain |
| 1A59.00 | C/O pelvic pain |
| 1A5A.00 | C/O perineal pain |
| 25C..00 | O/E - abdo. pain on palpation |
| 25C..11 | O/E - epigastric pain on palp. |
| 25C..15 | O/E - abdomen tender |
| 25C2.00 | O/E - abd.pain-R.hypochondrium |
| 25C3.00 | O/E - abd. pain - epigastrium |
| 25C4.00 | O/E - abd.pain-L.hypochondrium |
| 25C5.00 | O/E - abd. pain - R.lumbar |
| 25C6.00 | O/E - abd. pain - umbilical |
| 25C7.00 | O/E - abd. pain - L.lumbar |
| 25C8.00 | O/E - abd. pain - R.iliac |
| 25C9.00 | O/E - abd. pain - hypogastrium |
| 25CA.00 | O/E - abd. pain - L.iliac |
| 25CZ.00 | O/E -abd.pain on palpation NOS |
| 25D..00 | O/E - guarding on palpation |
| 25D..11 | O/E - guarding of abdomen |
| 25D2.00 | O/E - guarding-R.hypochondrium |
| 25D3.00 | O/E - guarding - epigastrium |
| 25D4.00 | O/E - guarding-L.hypochondrium |
| 25D5.00 | O/E - guarding - R.lumbar |
| 25D6.00 | O/E - guarding - umbilical |
| 25D7.00 | O/E - guarding - L.lumbar |
| 25D8.00 | O/E - guarding - R.iliac |
| 25D9.00 | O/E - guarding - hypogastrium |
| 25DA.00 | O/E - guarding - L.iliac |
| 25DZ.00 | O/E -guarding on palpation NOS |
| 25E..00 | O/E - rebound tenderness |
| 25E2.00 | O/E - rebound-R.hypochondrium |
| 25E3.00 | O/E - rebound - epigastrium |
| 25E4.00 | O/E - rebound-L.hypochondrium |
| 25E5.00 | O/E - rebound - R.lumbar |
| 25E6.00 | O/E - rebound - umbilical |
| 25E7.00 | O/E - rebound - L.lumbar |
| 25E8.00 | O/E - rebound - R.iliac |
| 25E9.00 | O/E - rebound - hypogastrium |
| 25EA.00 | O/E - rebound - L.iliac |
| 25EZ.00 | O/E - rebound tenderness NOS |
| 25F..00 | O/E - abdominal rigidity |
| 25F2.00 | O/E - board like abd. rigidity |
| 25F2.11 | O/E - acute abdomen |
| 25FZ.00 | O/E - abdominal rigidity NOS |
| 2AF2.00 | O/E - defaec.ref.abn.-constip. |
| E264500 | Psychogenic constipation |
| J52y100 | Difficulty in ability defaecat |
| J574700 | Anal pain |
| J574800 | Rectal pain |
| J574F00 | Anorectal pain |
| K58y000 | Other pelvic pain - female |
| R073.00 | [D]Flatulence, eructation and gas pain |
| R073200 | [D]Gas pain (abdominal) |
| R073z00 | [D]Flatulence, eructation and gas pain NOS |
| R079.00 | [D] Defaecation painful |
| R090.00 | [D]Abdominal pain |
| R090000 | [D]Abdominal tenderness |
| R090100 | [D]Abdominal colic |
| R090500 | [D]Epigastric pain |
| R090600 | [D]Umbilical pain |
| R090800 | [D]Suprapubic pain |
| R090900 | [D]Pain in right iliac fossa |
| R090C00 | [D]Loin pain |
| R090E00 | [D]Recurrent acute abdominal pain |
| R090G00 | [D]Pelvic and perineal pain |
| R090G11 | [D] Pelvic pain |
| R090G12 | [D] Perineal pain |
| R090H00 | [D]Upper abdominal pain |
| R090J00 | [D]Right upper quadrant pain |
| R090K00 | [D]Left upper quadrant pain |
| R090L00 | [D]Left lower quadrant pain |
| R090M00 | [D]Right lower quadrant pain |
| R090N00 | [D]Nonspecific abdominal pain |
| R090y00 | [D]Other specified abdominal pain |
| R090z00 | [D]Abdominal pain NOS |
| Ryu1100 | [X]Other and unspecified abdominal pain |

|  |  |
| --- | --- |
| **Other abdominal** | |
| **Code** | **Description** |
| 1421.00 | H/O: \* gastrointestinal tract |
| 14C..00 | H/O: gastrointestinal disease |
| 14CZ.00 | H/O: GIT disease NOS |
| 19...00 | Gastrointestinal symptoms |
| 19...11 | GIT symptoms |
| 19...12 | Intestinal symptoms |
| 19Z..00 | Gastrointestinal symptoms NOS |
| 25J..00 | O/E - abdominal mass palpated |
| 25J1.00 | O/E - abd. mass not palpated |
| 25J2.00 | O/E - abd. mass < 1 quadrant |
| 25J3.00 | O/E -abd.mass fills 1 quadrant |
| 25J4.00 | O/E - abd. mass fills half abd |
| 25J5.00 | O/E - abd. mass fills abdomen |
| 25J6.00 | Appendix mass |
| 25J7.00 | Right iliac fossa mass |
| 25J8.00 | O/E left lower abdominal mass |
| 25J9.00 | Epigastric mass |
| 25JA.00 | Loaded colon |
| 25JZ.00 | O/E - abd. mass palpated NOS |
| 25K..00 | O/E-abdominal mass consistency |
| 25K1.00 | O/E - abdominal mass - soft |
| 25K2.00 | O/E - abdominal mass - hard |
| 25K3.00 | O/E - abdominal mass-very hard |
| 25K4.00 | O/E - abdominal mass-pulsatile |
| 25KZ.00 | O/E - abd.mass consistency NOS |
| 25L..00 | O/E - abdominal mass shape |
| 25L1.00 | O/E - abd. mass -regular shape |
| 25L2.00 | O/E -abd.mass -irregular shape |
| 25LZ.00 | O/E - abd. mass shape NOS |
| 25M..00 | O/E - abd.mass movt.with resp. |
| 25M1.00 | O/E - abd.mass moves with resp |
| 25M2.00 | O/E - abd.mass still with resp |
| 25MZ.00 | O/E - abd.mass + respn. NOS |
| 25N..00 | O/E - abd.mass -border defined |

|  |  |
| --- | --- |
| **Backpain** | |
| **Code** | **Description** |
| 16C..00 | Backache symptom |
| 16C2.00 | Backache |
| 16C3.00 | Backache with radiation |
| 16C4.00 | Back pain worse on sneezing |
| 16C5.00 | C/O - low back pain |
| 16C6.00 | Back pain without radiation NOS |
| 16C7.00 | C/O - upper back ache |
| 16C8.00 | Exacerbation of backache |
| 16C9.00 | Chronic low back pain |
| 16CA.00 | Mechanical low back pain |
| 16CZ.00 | Backache symptom NOS |
| 1D24.11 | C/O - a back symptom |
| N12..13 | Acute back pain - disc |
| N141.11 | Acute back pain - thoracic |
| N142.11 | Low back pain |
| N142.13 | Acute back pain - lumbar |
| N143.11 | Acute back pain with sciatica |
| N145.00 | Backache, unspecified |
| N145.11 | Acute back pain - unspecified |
| N145.12 | Back pain, unspecified |