Sources of Read code lists used to define each symptom.

We identified fatigue and 35 additional symptoms, based on symptoms listed in NICE NG 12 (2015) recommendations for suspected cancer[1–3] and additional sources,[4–6] for which Read code lists were available [7] [7,8,17,9–16].

Codes were amalgamated across sources, with minor additions by YL, CR, MB, MR, and BW. They were then deduplicated to ensure symptom definitions were mutually exclusive, and validated by clinical co-authors (YL, CR).

*Exeter University: Symptoms were defined using libraries of Read codes developed by WH and SP, and subsequently published in Moore et al 2021.*

*UCL: Additional codes were added following further empirical use by colleagues GL, CR, BW, MB, and MR.*

|  |  |
| --- | --- |
| **Symptom** | **Source of Read code list** |
| **Alarm symptoms** | |
| Abdominal (incl rectal) mass or intestinal obstruction | Renzi et al 2016 |
| Breast lump | Watson et al 2017, Exeter Uni., UCL |
| Breast skin changes | Din et al 2015 |
| Change in bowel habit | Watson et al 2017, Exeter Uni., UCL |
| Dysphagia | Watson et al 2017, Exeter Uni., UCL |
| Haematuria | Watson et al 2017, Exeter Uni., UCL |
| Haemoptysis | Watson et al 2017, Exeter Uni., UCL |
| Head or neck lump | Din et al 2015 |
| Hoarseness | Din et al 2015 |
| Jaundice | Watson et al 2017, Exeter Uni., UCL |
| Lump (excl. head & neck, breast, testicular, abdominal) | Din et al 2015 |
| Lymphadenopathy | Din et al 2015 |
| Nipple changes of concern (incl discharge or retraction) | Din et al 2015 |
| Post-menopausal bleeding | Watson et al 2017, Exeter Uni., UCL |
| Rectal bleeding | Watson et al 2017, Exeter Uni., UCL |
| Testicular enlargement/ lump | Din et al 2015 |
| **Non-alarm symptoms** | |
| Abdominal bloating | Watson et al 2017, Exeter Uni., UCL |
| Abdominal pain | Watson et al 2017, Exeter Uni., UCL Din et al 2015 Doran et al 2011 |
| Back pain | Doran et al 2011 Adapted by BW from Masefield et al 2021 |
| Chest pain | Din et al 2015 |
| Constipation | Renzi et al 2016 |
| Cough | Din et al 2015 |
| Diarrhoea | Renzi et al 2016 |
| Dyspnoea | Watson et al 2017, Exeter Uni., UCL |
| Fatigue | Exeter Uni., UCL |
| Headache | Adapted by BW from Masefield et al 2021 |
| Lower respiratory tract infection | Palin et al 2019 |
| Other musculoskeletal pain (excl back, pelvic, chest, abdominal, | Din et al 2015 Doran et al 2011 Adapted by BW from Masefield et al 2021 |
| Night sweats | Watson et al 2017, Exeter Uni., UCL |
| Pelvic pain | Din et al 2015 Zhou et al 2021 |
| Stomach disorders (incl dyspepsia) | Watson et al 2017, Exeter Uni., UCL Zhou et al 2021 Bouras et al 2017 Din et al 2015 |
| Testicular pain | Din et al 2015 |
| Thromboembolic disease (incl pulmonary embolism) | Hawker et al 2014, available at [Caliber PH674](https://phenotypes.healthdatagateway.org/phenotypes/PH674/version/1348/detail/) Kuan et al 2019, available at Caliber [PH338 v67](https://phenotypes.healthdatagateway.org/phenotypes/PH338/version/676/detail/) Kuan et al 2019, available at Caliber [PH71 v142](https://phenotypes.healthdatagateway.org/phenotypes/PH71/version/142/detail/) |
| Upper respiratory tract infection | Palin et al 2019 |
| Urinary Tract Infections | Zhou et al 2021 |
| Weight loss | Watson et al 2017, Exeter Uni., UCL |

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