

Appendix 1: READ codes extracted from SystemOne

| READ codes | Indicate active palliative care? |
|---|----------------------------------|
| (1Z01.) Terminal illness - late stage | No |
| (8BA2.) End of life care | No |
| (8H6A.) Refer to terminal care consult | Yes |
| (8H7L.) Refer for terminal care | Yes |
| (9EB5.) DS 1500 Disability living allowance completed | No |
| (Xa9tS) For resuscitation | No |
| (Xa9tT) Not for resuscitation | No |
| (XaAex) Referral to palliative care service | Yes |
| (XaAg6) Referral to palliative care physician | Yes |
| (XaAPW) Under care of palliative care physician | Yes |
| (XaAT5) Seen by palliative care physician | Yes |
| (XaAWN) Seen by palliative care medicine - service | Yes |
| (XaEJE) Palliative care | No |
| (XaIlk) Referred to community specialist palliative care team | Yes |
| (XaIpl) Palliative treatment | Yes |
| (XaIpl) Final days pathway | No |
| (XaIpX) Preferred place of death | No |
| (Xalse) Specialist palliative care treatment | Yes |
| (Xalsy) Preferred place of death discussed with patient | No |
| (Xalt6) Specialist palliative care treatment – day care | Yes |
| (Xalt7) Specialist palliative care treatment - outpatient | Yes |
| (XaJ3g) Preferred place of death: home | No |
| (XaJ3h) Preferred place of death: hospice | No |
| (XaJ3j) Preferred place of death: hospital | No |
| (XaJ3k) Preferred place of death: nursing home | No |

| | |
|---|----|
| (XaJv2) On gold standards palliative care framework | No |
| (XaLwc) Resuscitation discussed with patient | No |
| (XaLwd) Resuscitation discussed with carer | No |
| (XaMhi) Liverpool care pathway for the dying | No |
| (XaPmq) Issue of palliative care anticipatory medication box | No |
| (XaQ8S) Anticipatory palliative care | No |
| (XaQg1) Last days of life | No |
| (XaQzq) Preferred place of death: pt unable to express preference | No |
| (XaQzr) Preferred place of death: discussion not appropriate | No |
| (XaQzt) Preferred place of death: patient undecided | No |
| (XaR50) GSF supportive care stage 1 - advancing disease | No |
| (XaR53) GSF supportive care stage 2 - increasing decline | No |
| (XaR5A) GSF supportv care stge 3 - last days: cat C - wks prognosis | No |
| (XaRFF) Has end of life advance care plan | No |
| (XaRFG) On end of life care register | No |
| (XaX46) GSF supportv care stge 3 - last days: cat B - mth prognosis | No |
| (ZV57C) [V]Palliative care | No |

Appendix 2. Medications identified as strong opioids

- Buprenorphine (>10mcg)
- Diamorphine
- Dipipanone (with cyclizine)
- Fentanyl
- Hydromorphone
- Meptazinol
- Morphine
- Oxycodone
- Pentazocine
- Papaveretum
- Pethidine

Appendix 3: Classification tree duration of palliative care cut-off points by end of life quality outcomes

Place of death

| | Cut-off points (n=2436): number (column %) | | | | Total |
|------------------------------|--|--------------------|--------------------|--------------------|-------------------------------|
| | Not received | 0-1 weeks | 2-7 weeks | 8+ weeks | |
| Own home | 280 (32.3%) | 70 (21.1%) | 148 (28.1%) | 211 (29.7%) | 709 (29.1%) |
| Hospice | 128 (14.8%) | 104 (31.4%) | 237 (45.0%) | 288 (40.5%) | 757 (31.1%) |
| Hospital | 353 (40.7%) | 146 (44.1%) | 105 (19.9%) | 121 (17.0%) | 725 (29.8%) |
| Care home | 106 (12.2%) | 11 (3.3%) | 37 (7.0%) | 91 (12.8%) | 245 (10.1%) |
| <i>Statistical test</i> | | | | | $(\chi^2(9)=280.75, p<0.001)$ |
| Total: Number (row %) | 867 (35.6%) | 331 (13.6%) | 527 (21.6%) | 711 (29.2%) | 2436 |

Opioid prescription within last year of life

| | Cut-off points (n=2475): number (column %) | | | | | Total |
|------------------------------|--|--------------------|--------------------|--------------------|-------------------------------|--------------|
| | Not received | 0-3 weeks | 4-7 weeks | 8-32 weeks | 33+ weeks | |
| Yes | 222 (25.3%) | 237 (41.3%) | 149 (50.0%) | 299 (62.8%) | 177 (70.8%) | 1084 (43.8%) |
| No | 655 (74.7%) | 337 (58.7%) | 149 (50.0%) | 177 (37.2%) | 73 (29.2%) | 1391 (56.2%) |
| <i>Statistical test</i> | | | | | $(\chi^2(4)=279.01, p<0.001)$ | |
| Total: Number (row %) | 877 (35.4%) | 574 (23.2%) | 298 (12.0%) | 476 (19.2%) | 250 (10.1%) | 2475 |

Time of latest chemotherapy

| | Cut-off points (n=2479): number (column %) | | | | Total |
|------------------------------|--|-------------------|---------------------|--------------------|-------------------------------|
| | Not received | 0 weeks | 1-32 weeks | 33+ weeks | |
| No chemotherapy | 463 (52.6%) | 50 (30.7%) | 466 (39.4%) | 66 (26.4%) | 1045 (42.2%) |
| 0-4 weeks | 47 (5.3%) | 16 (9.8%) | 60 (5.1%) | 6 (2.4%) | 129 (5.2%) |
| 5+ weeks | 371 (42.1%) | 97 (59.5%) | 659 (55.6%) | 178 (71.2%) | 1305 (52.6%) |
| <i>Statistical test</i> | | | | | $(\chi^2(3)=55.494, p<0.001)$ |
| Total: Number (row %) | 881 (35.5%) | 163 (6.6%) | 1185 (47.8%) | 250 (10.1%) | 2479 |

Avoided emergency hospital admissions 0-4 weeks before death

| | Cut-off points (n=2479): number (column %) | | | Total |
|------------------------------|--|--------------------|---------------------|-------------------------------|
| | Not received | 0-3 weeks | 4+ weeks | |
| Yes | 704 (79.9%) | 392 (68.3%) | 830 (81.1%) | 1926 (77.7%) |
| No (one or more admission) | 177 (20.1%) | 182 (31.7%) | 194 (18.9%) | 553 (22.3%) |
| <i>Statistical test</i> | | | | $(\chi^2(2)=36.390, p<0.001)$ |
| Total: Number (row %) | 881 (35.5%) | 574 (23.2%) | 1024 (41.3%) | 2479 |