Supplemental file 1: MEDLINE search strategies

The table below shows the full search strategy including the additional manipulation of the term ‘mortality’ conducted in February 2020. The original search strategy is in rows 1-26; the additional strategy is from row 27 onwards.

| # | Searches                                                                 | Results |
|---|--------------------------------------------------------------------------|---------|
| 1 | Frail elderly/                                                           | 10985   |
| 2 | Frailty/                                                                 | 2077    |
| 3 | frail*.ti,ab,kw.                                                         | 20344   |
| 4 | 1 or 2 or 3                                                              | 24440   |
| 5 | Terminal Care/                                                           | 27514   |
| 6 | Hospice Care/                                                            | 6332    |
| 7 | Palliative Care/                                                         | 52750   |
| 8 | Terminally Ill/                                                          | 6419    |
| 9 | ("end of life" or end stage or late stage or deterioriat* or declin* or | 966012  |
|   | dying or palliat* or life limiting or life-limiting or terminal*).ti,ab,kw. |         |
| 10| or/5-9                                                                   | 994189  |
| 11| (Stratification or Discrimination or Discriminate or c-statistic or "c  | 747655  |
|   | statistic or "Area under the curve" or AUC or Calibration or Indices or Algorithm or Multivariable).ti,ab,kw. |         |
| 12| ROC Curve/                                                               | 55872   |
| 13| "Predictive Value of Tests"/                                            | 198365  |
| 14| observer variation/                                                      | 41825   |
| 15| (predict* or scor* or observ*).ti,ab,kw.                                 | 5212233 |
| 16| or/11-15                                                                | 5755012 |
| 17| (adaptive clinical trial or clinical trial or clinical trial phase i or | 2603782 |
|   | clinical trial phase ii or clinical trial phase iii or clinical trial    |         |
|   | phase iv or comparative study or controlled clinical trial or evaluation |         |
|   | studies or meta analysis or multicenter study or observational study or  |         |
|   | pragmatic clinical trial).pt.                                             |         |
|   | EXPRESSIONS                                                                 | COUNT  |
|---|-----------------------------------------------------------------------------|--------|
| 18| exp epidemiologic studies/ or feasibility studies/ or pilot studies/        | 2565475|
| 19| ((intervention* or program* or strateg* or initiative* or project?) and (evaluat* or effect* or measur* or assess*)).ti,ab,kw. | 1595158|
| 20| or/17-19                                                                    | 5642691|
| 21| 4 and 10 and 16                                                              | 1429   |
| 22| 4 and 10 and 20                                                              | 1842   |
| 23| 21 or 22                                                                    | 2352   |
| 24| exp neoplasms/                                                               | 3283100|
| 25| 23 not 24                                                                    | 2158   |
| 26| limit 25 to (english language and humans)                                    | 1674   |
| 27| mortality/ or hospital mortality/                                            | 80862  |
| 28| mo.fs.                                                                       | 561375 |
| 29| 27 or 28                                                                     | 605629 |
| 30| 4 and 29 and (16 or 20)                                                       | 2103   |
| 31| 30 not 24                                                                    | 1736   |
| 32| limit 31 to (english language and humans)                                    | 1659   |
| 33| 32 not 26                                                                    | 1382   |
| 34| 4 and 27 and (16 or 20)                                                       | 702    |
| 35| 34 not 24                                                                    | 677    |
| 36| limit 35 to (english language and humans)                                    | 646    |
| 37| 36 not 26                                                                    | 545    |
| 38| 4 and 28 and (16 or 20)                                                       | 1671   |
| 39| 38 not 24                                                                    | 1312   |
| 40| limit 39 to (english language and humans)                                    | 1260   |
| 41| 40 not 26                                                                    | 1053   |
| 42| 41 not 37                                                                    | 837    |
|   |   |   |
|---|---|---|
| 43 | from 42 keep 1-837 | 837 |
| 44 | Frailty/mo [Mortality] | 191 |
| 45 | 44 and (16 or 20) | 180 |
| 46 | limit 45 to (english language and humans) | 178 |
| 47 | 46 not 24 | 164 |
| 48 | 47 not 26 | 142 |
| 49 | 37 not 48 | 518 |
| 50 | 41 not (48 or 37) | 722 |
| 51 | 33 or 48 | 1382 |
### Supplemental file 2: studies excluded at full-text review

| Study                        | Reason                  | Notes                                                                 |
|------------------------------|-------------------------|----------------------------------------------------------------------|
| Amblas-Novellas et al. 2016  | Wrong population        | Not already identified as frail                                       |
| Amella 2003                  | Wrong study design      | Not prognostic or intervention                                        |
| Armstrong et al. 2010        | Wrong publication type  | Research letter                                                        |
| Arora et al. 2010            | Wrong population        | Not already identified as frail - 'vulnerable hospitalised elders'     |
| Barclay et al. 2014          | Wrong population        | Not defined as frail                                                   |
| Brown et al. 2016            | Wrong time span         | > one year                                                             |
| Buchman et al. 2009          | Wrong time span         | > one year                                                             |
| Butler et al. 2019           | Wrong time span         | > one year                                                             |
| Cardona-Morrell et al. 2015  | Wrong study design      | Review paper                                                           |
| Cardona-Morrell et al. 2017  | Wrong study design      | Narrative 'state of play'                                             |
| Cardona 2018                 | Wrong population        | Not already identified as frail                                       |
| Carey et al. 2008            | Wrong population        | Not clear that the population are all frail; not clear that people with cancer are disaggregated |
| Cole et al. 2019             | Wrong population        | Not defined as frail                                                   |
| Conroy et al. 2011           | Wrong intervention      | Not prognostic; interventions not specifically for end of life        |
| Covinsky et al. 2003         | Wrong population        | Not clear that the population are all frail; not clear that people with cancer are disaggregated |
| Curtin et al. 2019           | Wrong publication type  | Conference abstract                                                    |
| Deng 2017                    | Wrong publication type  | Conference abstract                                                    |
| Dent et al. 2016             | Wrong study design      | Review of frailty scales, not prognostic models                       |
| Ekerstad et al. 2017         | Wrong population        | Identified as frail but not as being in end of life phase              |
| Espinoza et al. 2012         | Wrong time span         | > one year                                                             |
| Evans et al. 2016            | Wrong publication type  | Conference abstract                                                    |
| Giannini et al. 2007         | Wrong intervention      | Not prognostic; interventions not specifically for end of life        |
| Glajchchen et al. 2011       | Wrong population        | Cannot disaggregate cancer patients                                    |
| Heppenstall et al. 2015      | Wrong population        | Long term care residence as proxy for frailty                          |
| Huang et al. 2007            | Wrong population        | Not defined as frail                                                   |
| Huijberts et al. 2016        | Wrong population        | Long term care residence as proxy for frailty                          |
| Iwata et al. 2006            | Wrong population        | Not defined as frail                                                   |
| Jakobsson et al. 2011        | Wrong population        | Long term care residence as proxy for frailty                          |
| Study                                | Error Type                         | Description                                                                 |
|--------------------------------------|------------------------------------|-----------------------------------------------------------------------------|
| Kaehr et al. 2016                    | Wrong population                   | Not already identified as frail                                             |
| Kagansky et al. 2005                 | Wrong population                   | Frailty as synonym for old age                                             |
| Kinley et al. 2014                   | Wrong study design                 | Implementation study                                                        |
| Landi et al. 2007                    | Wrong population                   | Not clear that the population are frail                                    |
| Lunney et al. 2003                   | Wrong population                   | Long term care residence as proxy for frailty                              |
| Ma et al. 2013                       | Wrong population                   | Not already identified as frail                                             |
| Mendonca et al. 2019                 | Wrong time span                    | > one year                                                                  |
| Mukamel et al. 2004                  | Wrong population                   | Not clear that the population are all frail; not clear that people with cancer are disaggregated |
| Nouvenne et al. 2016                 | Wrong intervention                 | Biomarker study                                                             |
| O’Caoimh et al. 2014                 | Wrong population                   | Less than half the population clearly defined as frail                     |
| Overbeek et al. 2016                 | Wrong publication type             | Conference abstract                                                         |
| Overbeek et al. 2018                 | Wrong intervention                 | Participants not clearly identified as being at end of life                 |
| Overbeek et al. 2019                 | Wrong intervention                 | Participants not clearly identified as being at end of life                 |
| Romoren et al. 2003                  | Wrong outcome                      | Not predicting entry into end of life phase                                 |
| Salamanca-Balen et al. 2018          | Wrong population                   | Frailty as synonym for old age                                             |
| Sanchez-Rodriguez et al. 2019        | Wrong population                   | Not clear that the population are frail                                    |
| Stolz et al. 2019                    | Wrong population                   | Not identified as frail                                                     |
| Stow et al. 2018                     | Wrong population                   | Not already identified as frail                                             |
| Sullivan et al. 1991                 | Wrong population                   | No access to article, but from 1991 which predates the conceptions of frailty in our criteria |
| Thomazeau et al. 2017                | Wrong study design                 | Review; article in French                                                  |
| Todd et al. 2019                     | Wrong time span                    | > one year                                                                  |
| van der Steen et al. 2005            | Wrong population                   | Long term care residence as proxy for frailty                              |
| van Kempen et al. 2015               | Wrong outcome                      | Not end of life                                                             |
| Vermeiren et al. 2016                | Wrong population                   | Review; four papers of relevance but not identified as frail               |
| Woods et al. 2019                    | Wrong publication type             | Conference abstract                                                         |
| Wu et al. 2018                       | Wrong time span                    | > one year                                                                  |
| Yash Pal et al. 2017                 | Wrong study design                 | Descriptive                                                                 |
| Zasadzka et al. 2019                 | Wrong population                   | Not already identified as frail                                             |