The costs of specialist palliative care, and complexity and casemix in the UK

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The C-CHANGE research programme

Aim: to develop and test a person-centred, nationally applicable casemix classification (currency) for adult specialist palliative care provision in England, to accurately capture the complex needs of patients with advanced disease in last year of life, to better quantify those needs and to support more equitable allocation of resources to meet them

Project dates: 2014 - 2021

The objectives:

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1. to validate or refine new and existing person-centred outcome measures to assess the main health status and symptoms/concerns of patients receiving specialist palliative care

2. to gain the perspectives of key stakeholders on complexity in palliative care to inform subsequent casemix development

3. to understand the criteria which distinguish different models of palliative care to help inform how a casemix classification can be utilised across different models of specialist palliative care

4. to develop a person-centred palliative care casemix classification, based on individual patient needs and costs of care, for adults with both cancer and non-cancer conditions in the last year of life

5. to test this person-centred palliative care casemix classification (or currency) in terms of ability to predict resource use in the last year of life

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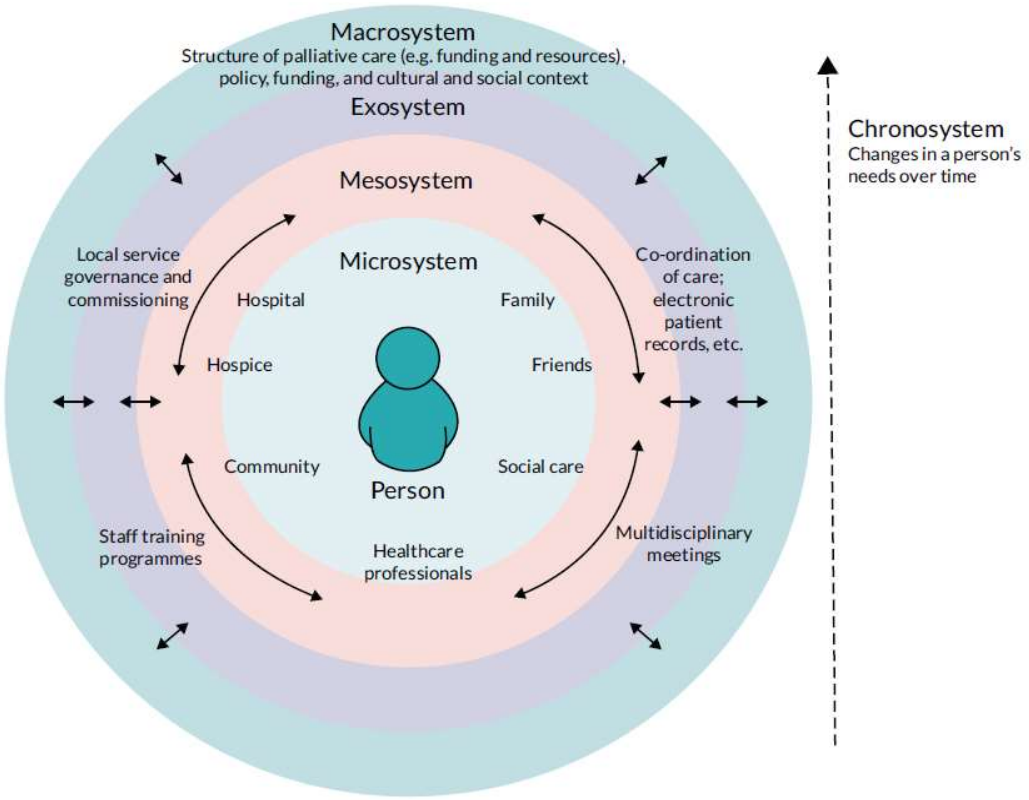
The complexity of specialist palliative care:

Based on interviews with 65 participants: people with advanced illness, families, professionals, managers and senior leaders.



Pask S, Pinto C, Bristowe K, van Vliet L, Nicholson C, Evans CJ, *et al.* A framework for complexity in palliative care: a qualitative study with patients, family carers and professionals. *Palliat Med* 2018;**32**:1078–90. https://doi.org/10.1177/0269216318757622

What might help indicate complexity?

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- Age, sex, diagnosis, living circumstances (without family support), need for interpreter, urgency of care needs, functional status, dependency, and symptoms/problem severity.
- We identified, developed and adapted measures to capture the more complex of these possible indicators
  - Palliative Phase of Illness, AKPS, IPOS, short form Barthel
- **How do you combine and weight these indicators?**

What about complexity and casemix?

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How does complexity relate to casemix?

Casemix has several meanings, from the literal ‘mix of cases (patients)’ seen by a team or service, to how patient care can be classified into groups.

These groups provide a useful measure on which to judge outcomes, make comparisons, to cost healthcare, or to fund it

The key principles of a casemix classification are well-established internationally and require casemix groups to be:

- clinically meaningful, similar at group level in resource terms, based on something measurable, and fairly straightforward in number of groups

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What did we know about the costs of specialist palliative care prior to C-CHANGE?

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- 2012: The estimated cost for a day of community care at the end of life is £145 (district nursing, community Marie Curie nursing, social care, CNS, OP) compared with the cost of £425 for a specialist palliative in-patient bed day in hospital https://www.mariecurie.org.uk/globalassets/media/documents/commissioning-our-services/publications/understanding-cost-end-life-care-different-settingspdf
- Gardiner C, Ryan T, Gott M. What is the cost of palliative care in the UK? A systematic review. BMJ Support Palliat Care 2018;8:-7.doi: 10.1136/bmjspcare-2018-001519 pmid: 29653925
- We know very little about the costs of specialist palliative care

BMJ 2022;378:o1769 http://dx.doi.org/10.1136/bmj.o1769

What did we know about the costs of specialist palliative care prior to C-CHANGE?

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- 2008: NAO report "The potential cost savings of greater use of home- and hospice-based end of life care in England

  https://www.nao.org.uk/wp-content/uploads/2008/11/07081043_potentialsavings.pdf

- Coyle, D., N. Small, B. A. Ashworth, S. Hennessy, S. Jenkins-Clarke, R. Mannion, N. Rice and S. Ahmedzai. 1999. Costs of palliative care in the community, in hospitals and in hospices in the UK. Critical Reviews in Oncology/Hematology 32: 71–85

  https://pubmed.ncbi.nlm.nih.gov/10612007/

The C-CHANGE study:
How much does specialist palliative care cost? (note: 2017 data)

How did we study this?

We recruited 2,469 adults receiving specialist palliative care …

… into a prospective multi-centre cohort study across 14 organisations

We collected the detailed and actual costs of their care by setting, for:

- Specialist palliative care at home
- Specialist (advisory) palliative care in hospital
- Care in an inpatient palliative care unit (hospice)

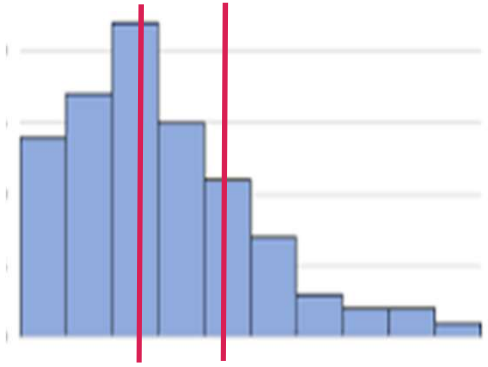
What did we find?

Average (mean) cost of specialist palliative care in each setting (2017 data) was:

At home:	£35.78 per day
In hospital * :	£72.65 per day
Inpatient palliative care unit:	£716.38 per day

* Note that hospital costs here represents ONLY the cost of the specialist (advisory) palliative care, and NOT the cost of the inpatient hospital episode

The cost data across all settings was heavily right skewed:



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Cite: Murtagh FEM, Guo P, Firth A, Yip KM, Ramsenthaler C, Douiri A, et al. A casemix classification for those receiving specialist palliative care during their last year of life across England: the C-CHANGE research programme. Programme Grants Appl Res 2023;11(7). https://doi.org/10.3310/PLRP4875

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What did we find?

Average (median) cost of specialist palliative care in each setting (2017 data) was:

The interquartile range (25%ile to 75%ile) for costs across the different providers of specialist palliative care was wide, depending on the model:

At home:	£21.37 per day	between £6.23 and £49.13 per day
In hospital * :	£56.15 per day	between £31.22 and £100.03 per day
Inpatient palliative care unit:	£434.33 per day	between £365.72 and £664.00 per day

* Note that hospital costs here represents ONLY the cost of the specialist (advisory) palliative care, and NOT the cost of the inpatient hospital episode

More details here:
https://doi.org/10.3310/PLRP4875

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What might help indicate complexity?

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- Age, sex, diagnosis, living circumstances (without family support), need for interpreter, urgency of care needs, functional status, dependency, and symptoms/problem severity.

What underpins casemix classification (or currency) in the palliative context?

- clinically meaningful, similar at group level in resource terms, measurable, straightforward number of groups
- We developed and adopted measures to capture the more complex of these possible indicators - palliative Phase of Illness, AKPS, IPOS

But main question is how to combine and weight these indicators?

The C-CHANGE study:
Can we measure complexity and casemix in specialist palliative care?

How did we study this?

We recruited 2,469 adults receiving specialist palliative care …

… into a prospective multi-centre cohort study across 14 organisations

We collected potential measures of complexity and the costs of care, in:

- Specialist palliative care at home
- Specialist (advisory) palliative care in hospital
- Care in an inpatient palliative care unit (hospice)

What did we find?

Key variables - measured at the start of an episode of palliative care – accurately reflect the complexity and costs of care

For specialist palliative care at home:

At first assessment:

- Phase of Illness
- Family distress
- Functional status
- Physical symptoms

Combined, these predict 27% of the variance in costs of subsequent episode of care

For specialist (advisory) palliative care in hospital:

At first assessment:

- Living alone
- Pain
- Phase of Illness
- Sex
- Functional status

Combined, these predict 20% of the variance in costs of subsequent episode of care

For care in an inpatient palliative care unit (hospice):

At first assessment:

- Pain
- Family distress
- Phase of Illness
- Physical symptoms
- Psychological symptoms

Combined, these predict 51% of the variance in costs of subsequent episode of care

More details here:

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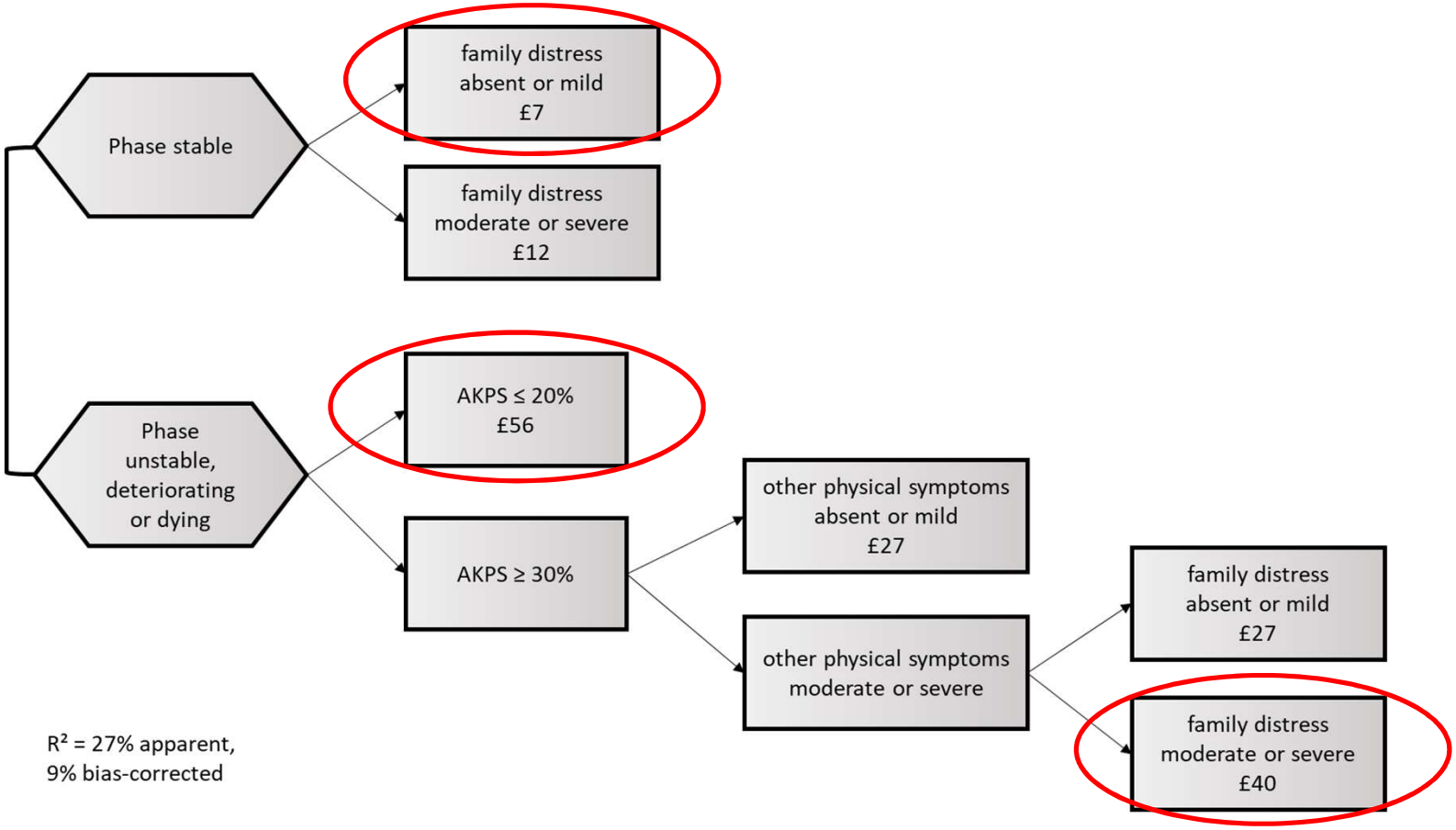
How to combine and weight indicators: Community episodes of care:

What determines greater need for palliative team input and care?

Phase, function, family distress, symptoms other than pain

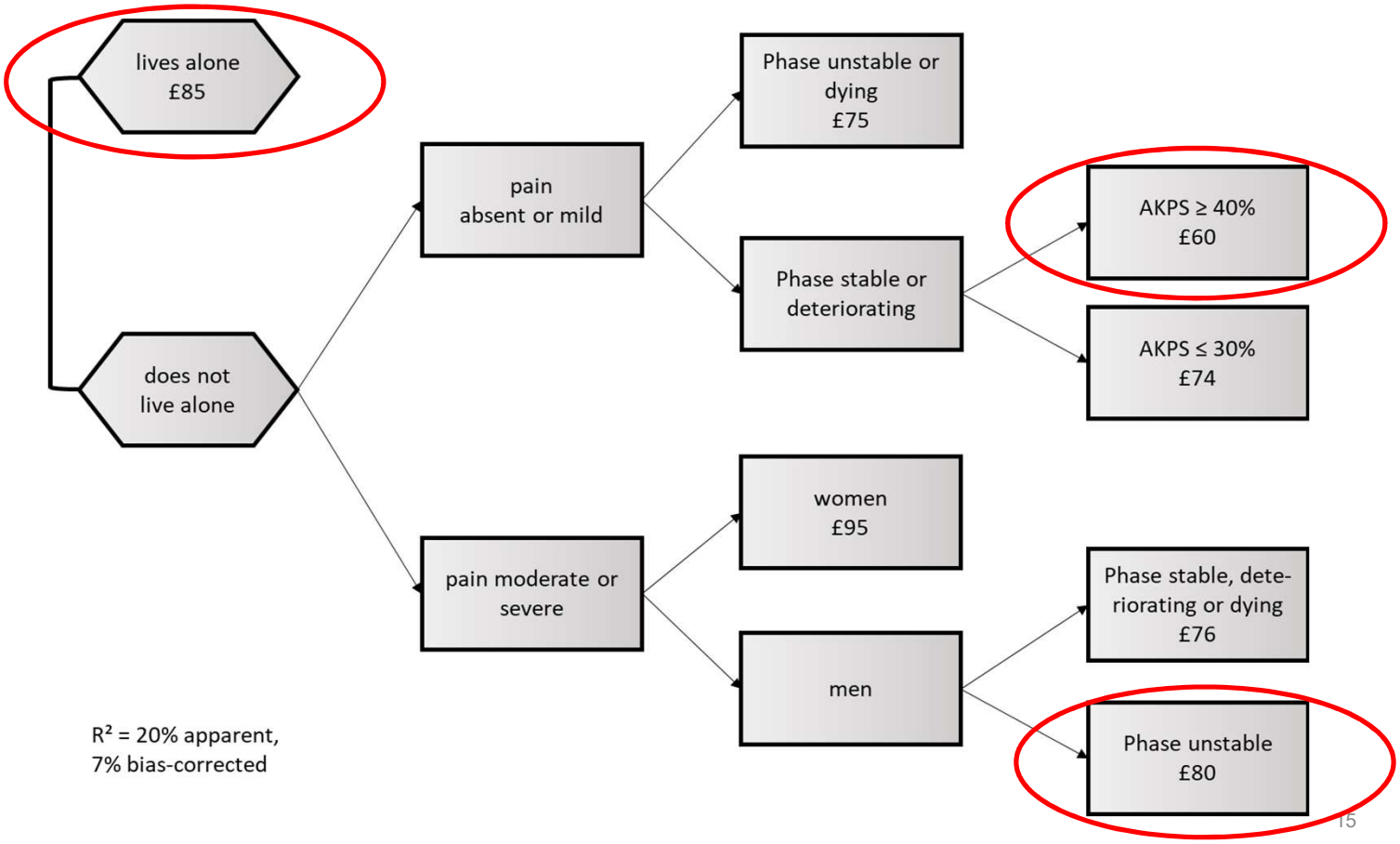


R^2 = 27% apparent, 9% bias-corrected

How to combine and weight indicators: Hospital advisory episodes of care:

What determines greater need for palliative team input and care in hospital?

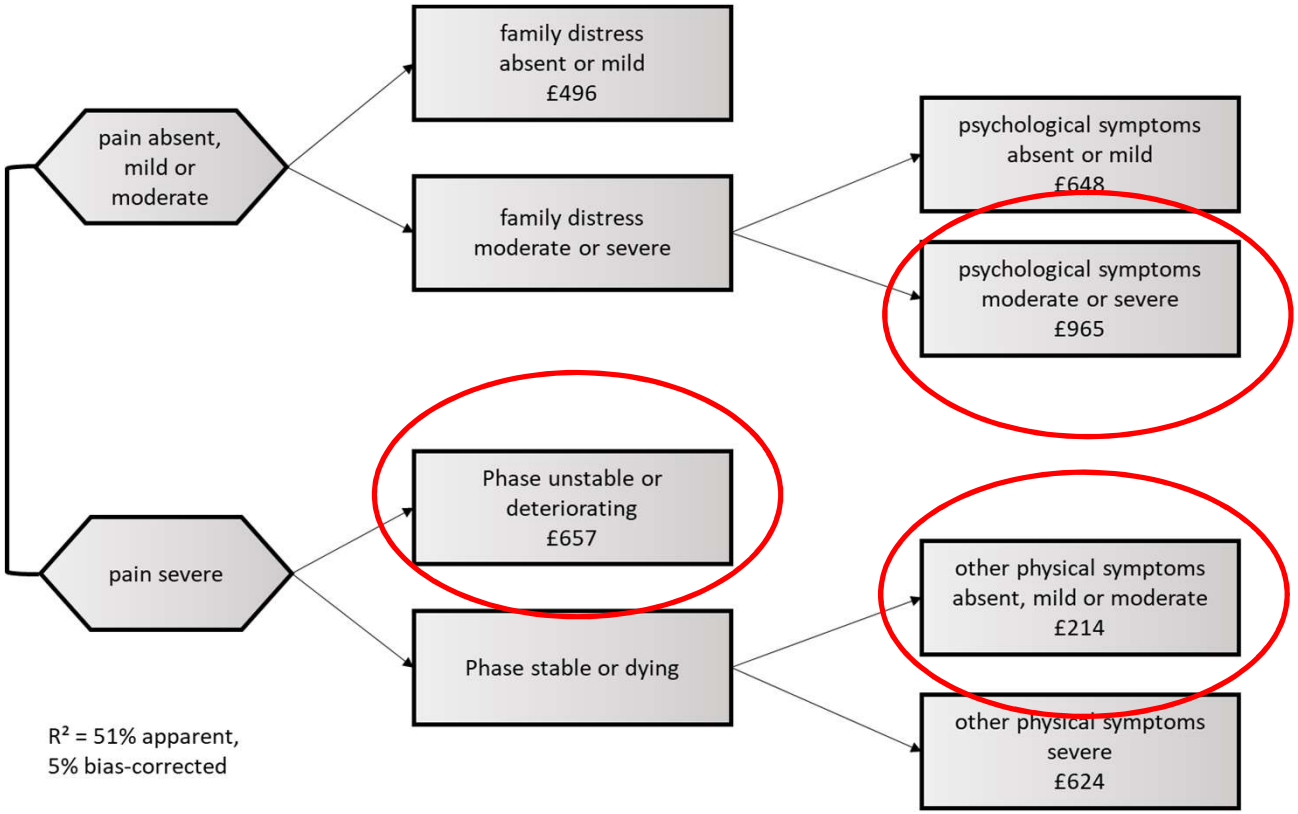
Living alone, pain, Phase, function



How to combine and weight indicators: Hospice inpatient episodes of care:

What determines greater need for palliative team input and care?

Pain, family distress, Phase, psychological distress, and symptoms other than pain



The C-CHANGE study:
Does the casemix classification predict specialist palliative care costs?

How did we study this?

We recruited 309 adults receiving specialist palliative care …

… into a new prospective cohort study across 12 organisations

We applied the previously derived casemix classes and the actual costs of the subsequent episode of care:

- In specialist palliative care at home
- Specialist (advisory) palliative care in hospital
- Care in an inpatient palliative care unit (hospice)

What did we find?

Average (mean) cost of specialist palliative care in each setting was:

At home:	£34.56 per day
In hospital * :	£50.83 per day
Inpatient palliative care unit:	£602.02 per day

- Note that hospital costs here represents ONLY the cost of the specialist (advisory) palliative care, and NOT the cost of the inpatient hospital episode

2017 data

The casemix classes were highly predictive of the costs of episodes of care:

At home in the community palliative care

In hospital from advisory palliative care

Less predictive of inpatient palliative care which was consistently more expensive

More details here:

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What does all this mean?

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- We have relatively recent cost data for specialist palliative care
- If you collect data on age, sex, living situation, and measure palliative Phase of Illness, AKPS, physical and psychological symptoms, and family anxiety/distress (e.g. with a measure such as IPOS), then:
  - You can understand the complexity of the palliative care population you see clinically, and whether/how this is changing over time
  - You can apply the casemix classification
    - to report casemix classes
    - to predict resource use for the subsequent episode of care
    - To consider skill mix and work allocation in your team
    - To casemix adjust in order to understand outcomes achieved

The full report is available at

https://www.ncbi.nlm.nih.gov/books/NBK597740/

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This report should be referenced as follows:

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Thank you.

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