



Could it have been predicted? A retrospective analysis of the last year of life for people who died whilst in an intermediate care centre

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A B S T R A C T

Objectives: Intermediate care centres (ICCs) exist in the UK to bridge between acute hospital and home for those with rehabilitation needs. A national study shows 25% of ICC in-patients died within a year of admission. High quality end-of-life care includes early conversations with a person and their loved ones about what matters to them; timely identification of those who are likely to be nearing the end of their life is key.

Methods: This retrospective quantitative review of 98 patient notes reviewed deaths in one NHS trust, comparing 50 deaths in the acute hospital and 48 in the ICC. Data included frailty score, previous hospital admissions, specialist palliative input and conversations between professionals, patients and their loved ones. Supportive and Palliative Care Indicators Tool (SPICT) scores were used to identify those likely to have a poor prognosis.

Results: Results showed statistically significant differences between the groups. The ICC cohort were older with higher clinical frailty scores. They were less likely to have previous hospital admissions but more likely to have poor prognostic features on final admission. Despite this, the possibility of deterioration was discussed them less frequently than the acute hospital cohort, and fewer saw the Palliative care team.

Conclusion: This data suggests support is needed in ICCs to recognise those likely to be nearing end-of-life. One challenge is patients are more likely to be seen as 'well' in a rehabilitation focused environment. This paper suggests a 'proactive approach' trial using SPICT for ongoing assessment of ICC in-patients supporting identification of a deteriorating person and avoid missed opportunities for key conversations.

Background

Delivering high quality end-of-life care includes early conversations with a person and their loved ones about what matters most to them, so their wishes remain central in decision making.¹ This requires honest discussions about the possibility of dying, to enable future planning and avoidance of unnecessary or unwanted interventions.^{2,3} Ideally, these conversations would be ongoing between all individuals and their healthcare teams. However, this is challenging in a resource limited NHS when people often see a wide range of professionals, for short appointments.

It is important to identify those who are likely to be nearing the end of their life and would benefit from this conversation in a timely manner.⁴ As the population ages and more treatments become available for many long-term health conditions, people are living with higher disease burden for longer, perhaps with fewer immediate family nearby able to provide informal care and support. Among other initiatives, this has led to the development of intermediate care centres (ICC) for rehabilitation. These provide a step between hospital and home, enabling therapy team input and planning for future care needs.^{5,6} A national study of over 76,000 people admitted to an ICC showed 25% died within a year of admission, highlighting the need to integrate end-of-life care planning alongside rehabilitation in this cohort.⁷ This

compares to a mortality of 38% following admission to an acute geriatric ward.⁸ There are a number of tools to aid prognostication⁹⁻¹³; and although these all provide evidence-based guidance as to when a person is likely to be in the last months of life, there is no clear guidance as to who should be carrying out these scores, how often and in which environment. Despite increasing recognition of poor prognoses exhibited by ICC in-patients⁷ there has been little examination of the predictability of deterioration in this cohort (Fig. 1).

This study examined the last year of life of people who died in one NHS Foundation Trust ICC and acute hospital, with the aim of identifying factors that could highlight inpatients more likely to be in the last months of life. The **Supportive and Palliative Care Indicators Tool (SPICT)** was chosen as the tool for this paper as it is validated specifically for older people admitted acutely. (**Appendix 1**)¹⁴ It contains several criteria, including disease specific factors as well as markers of general deterioration.¹² If a person meets two or more of these criteria, they are likely to have a prognosis of 12 months or less, and in this paper classed as 'SPICT positive' (Fig. 2).

Methods

This study gained approval from the Trust Research & Innovation lead and Caldicott Guardian as a retrospective, cross-sectional quanti-

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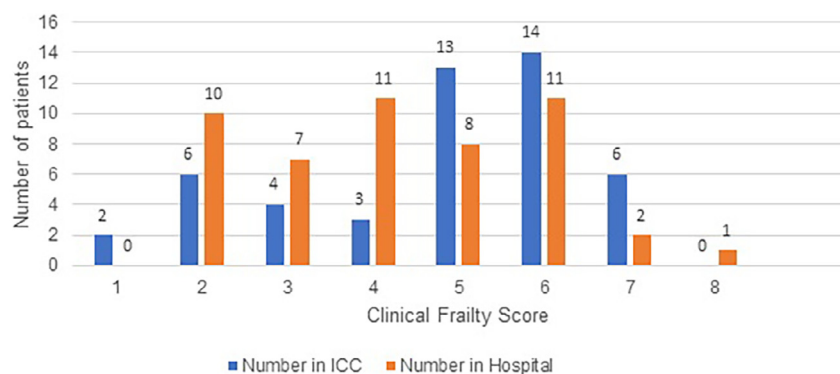


Fig. 1. Mean clinical frailty score: Of all people (n = 98) was 4.5 (1–8). Mean ICC patient score was 4.8 (1–7) compared to hospital score of 4.3 (2–8).

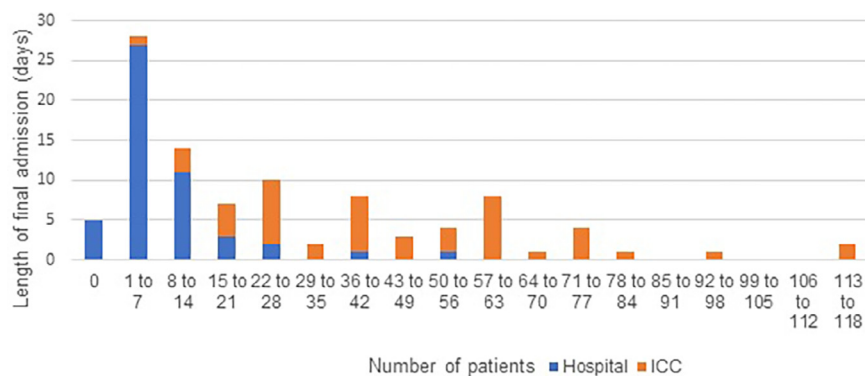


Fig. 2. Mean length of final admission: 26.4 days (0–116) overall. ICC people had a mean stay of 45.8 days (7–116) with hospital stays averaging 7.84 days (0–52). 96% (48/50) of hospital people died within 28 days compared to 33% of ICC people (16/48).

tative review of patient records in one NHS trust. All patients who died were selected in a consecutive, retrospective order from 31 April 2020 to get a sample size of 50 from the acute trust. To get a similar sample size of 48 people in the ICC, data collected spanned from July 2017 to April 2020. All patients who died in the ICC were admitted via the acute hospital and transferred during their stay. COVID positive decedents were excluded from the study but all ages were included. Members of the trust specialist palliative care team reviewed the admission notes and electronic patient record, collecting data pertaining to their last year of life. This included age at death, number of hospital admissions in last year, length of admission, palliative care review and details of communication between health professionals and families. A clinical frailty score (CFS)¹⁵ based on level of function at last admission was calculated retrospectively from the notes. Each person was assigned a decile of multiple deprivation based on their home postcode.¹⁶ A retrospective SPICt score was calculated on all admissions from the patient notes, with patients labelled as positive or negative.¹⁷

Results

Characteristic	Data	P value
1 Age of death in years (mean)	Hospital 80.4 (35–98) ICC 87.5 (62–98)	T-test: 0.00017
2 Clinical Frailty Score (mean)	Hospital 4.3 (2–8) ICC 4.8 (1–7)	T-test: 0.07
3 Index of deprivation (mean)	Hospital 7.3 (2–10) ICC 5.8 (1–10)	T-test: 0.002
4 % SPICt positive at final admission	Hospital 48 % (24/50) ICC 79 % (38/48)	Chi ² : 0.0014
5 Length of stay for final admission in days (mean)	Hospital 7.8 (0–52) ICC 45.8 (7–116)	T-test: 2.8
6 Number of admissions in last year of life (mean)	Hospital 1.02 (0–5) ICC 0.54 (0–3)	T-test: 0.02
7 Poor prognosis discussed with person	Hospital 24% (12/50) ICC 4% (2/48)	Chi ² : 0.005

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Characteristic	Data	P value
8 Poor prognosis discussed with family	Hospital 76% (38/50) ICC 83% (40/48)	Chi ² : 0.37
9 Specialist Palliative Care Team Review	Hospital 42% (21/50) ICC 17% (8/48)	Chi ² : 0.006
10 % SPICt positive at final admission when only admission of the year	Hospital 23% (7/31) ICC 77% (24/31)	Chi ² : 0.0001

Focusing on those who died in the ICC with preceding admissions, 86% (12/14) were ‘SPICt positive’ on a previous admission. This was a mean of 141 (38–266) days prior to death. In this time a mean of 36 (11–109) investigations were carried out (Figs. 3 and 4).

Discussion

Over half a million people die in UK hospitals annually.¹⁸ Recognising the dying person is important to involve them and their family in developing an individual care plan, including place of death and spiritual needs.¹⁹ The Leadership Alliance for Care of Dying people produced guidance for providing high quality care at the end of life.² It sets out priorities of care, the first being ‘this possibility (of dying) is recognised and communicated clearly, decisions made and actions taken in accordance with the person’s needs and wishes’. There is an ongoing conversation around the challenge of recognising dying, the importance of communicating uncertainty and potential tools that can aid this.²⁰ It is well documented that number of hospital admissions increase as people near the end of life and this is often used as a measure to identify such people.⁷ However, this paper suggests this does not translate to people admitted to an ICC for rehabilitation; the majority of whom (71%) had no prior admissions that year (Fig. 5).

ICCs for rehabilitation were designed to support people to increase their independence and rebuild strength following acute illness, fall or operation. The treating team usually comprises physiotherapists, occupational therapists, speech and language therapists, doctors and nurses

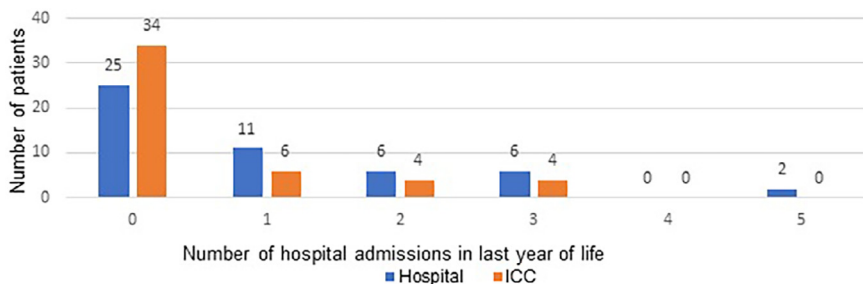


Fig. 3. Number of admissions in last year of life: 60% (59/98) of all people had no previous admissions in the year before death; 71% (34/48) of ICC people compared to 50% (25/50) hospital people. 17% (17/98) of all people had one previous admission in the year before death; 13% (6/48) of ICC people compared to 22% (11/50) hospital people. 20% (20/98) of all people had two or three previous admissions in the year before death respectively; 16% (8/48) of ICC people compared to 24% (12/50) hospital people. None had four previous admissions and 2% (2/98) of all people had five previous admissions; both dying in the acute hospital at 4% (2/50).

'SPICT positive' on only admission of the year

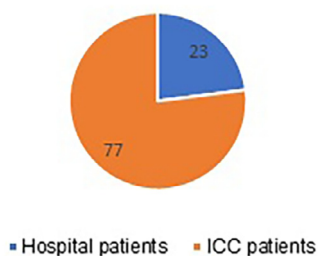


Fig. 4. SPICT positive on only admission of the year. Of people who died during their only admission of the year ($n = 59$), 53% (31/59) were 'SPICT positive' on admission; 77% (24/31) died in the ICC and 23% (7/31) died in the acute hospital.

with the admission criteria reflecting an expectation of 'rehabilitation potential'.²¹ As such, people in ICCs are more likely to have been previously well with minimal contact with healthcare professionals before suffering a sudden event, such as a stroke or fracture, resulting in a significantly reduced function. This study showed people who died in ICC more commonly had no prior hospital admissions in the previous year, were a mean of 7 years older and had an additional 38 days of admission compared to the acute hospital cohort. While the mean CFS was marginally higher in the ICC patient group at 4.8 compared to 4.3, this did not meet statistical significance. The range of CFS was lower within the ICC group (1–7 vs 2–8) which is explained by a higher group of people sitting in the 'middle range' rather the greater spread in hospital people. The ICC group also fell into more deprived groups than the hospital group with lower mean Index of Multiple Deprivation Decile. Deprivation within healthcare is complex and beyond the scope of this paper to examine in detail. However, this data may suggest those less able to access appropriate housing environments, additional therapy support or alternative care arrangements to support earlier discharge may be transferred to an ICC rather than their domiciliary residence.

This data highlights a number of differences between those that remain in the acute hospital and those transferred to an ICC for ongoing

care. Although the cohort is older with higher frailty scores, they may be more likely to be seen as 'well' with fewer previous hospital admissions. In combination with transfer to a centre focused on rehabilitation and longer stays it can be challenging to identify those in ICCs with a poor prognosis. However, failing to do so makes it more likely the person's wishes for their end of life are not known and has a significant effect on the bereavement process for loved ones.²²

In this study, the SPICT was used as an evidence-based method of identifying people with a poor prognosis who would therefore benefit from having a conversation with their healthcare professionals and loved ones about what matters to them.¹² SPICT was the chosen tool in this paper for several reasons. Firstly, it is designed to be used by a **multidisciplinary healthcare team (MDT)** alongside their clinical knowledge, which is particularly relevant in settings such as ICC. People are receiving input from numerous professionals, enabling a more personal and holistic picture which may improve scoring accuracy. Secondly, SPICT scores can also change over time as performance status changes, disease progresses, or treatments are stopped or reduced. This dynamic way of assessing people with longer admissions than those on an acute ward is another benefit for ICC use. Finally, it can be easily completed by all members of the MDT with the score easily interpreted and communicated via a common language. This is critical when considering future sustainable interventions.

Despite the ICC group having fewer previous hospital admissions, the data from this study suggests this was not because they had better prognostic markers. Most people who died in ICC were SPICT positive in all measured categories; on final admission (79%), on previous admissions (86%) and in the group whom died during only admission of the year (77%). The difference is the focus of care in the setting, ICCs are traditionally focused on therapy and rehab which can make it challenging to identify those at risk of deterioration and ensure ongoing review of their condition. As such, it can be difficult to recognise those with poor prognosis and ensure they have open conversations about what matters to them.

This paper shows a statistically significant difference between patient groups in the two settings. Almost a third (31%) more ICC people were SPICT positive (79% vs 48%) than the hospital group on admission for illness episode. However, they were much less likely to have conver-

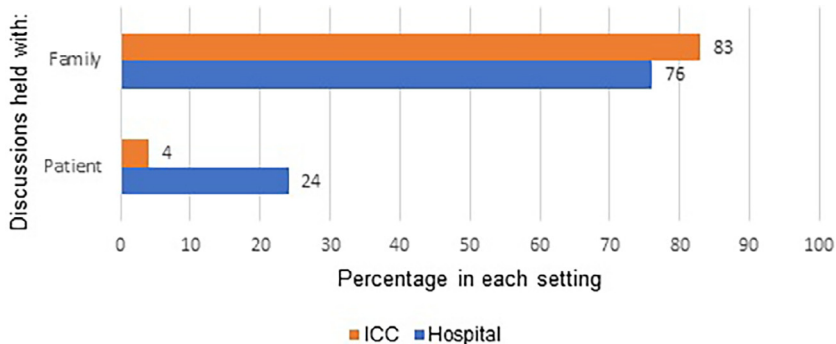


Fig. 5. Discussions with patients and family: 14% (14/98) of all people had their poor prognosis discussed with them during their final admission; 24% (12/50) of hospital people and 4% (2/48) of ICC people. 80% (78/98) of all people had their poor prognosis discussed with their family during their final admission; 76% (38/50) of hospital people and 83% (40/48) of ICC people.

sariously around end of life and less likely to have specialist palliative care team involvement, despite equal access to support. This suggests it may be more challenging for the teams to recognise the deterioration of patients in ICCs. It is possible dying was recognised and managed well without additional support, or that the deaths were different and more sudden in nature. Data regarding specific cause of death, resuscitation efforts and prescription of end-of-life medications were not measured given the focus of the paper remains on communication of the poor prognosis rather than management of the dying person. However, our data has shown communication was done less well than national standard. A routinely used tool may be beneficial in supporting the recognition of deteriorating people and this paper has shown the ICC population were more easily recognisable to be people with a poor prognosis had the SPICT been used on admission.

Introducing an evidence-based tool such as SPICT into ICCs only gives useful information when used properly. It must be carried out by the right professional, on the right patient at the right time, with a clear outcome depending on the score. This paper proposes SPICT should be introduced to routine care in ICC as an innovative approach to identify those who are less likely to achieve rehabilitation goals and more likely to have a poor prognosis. SPICT scores should be routinely documented as part of admission, to provide a baseline, with ongoing weekly reviews to highlight people who are rapidly deteriorating. Scores over two should act as a trigger for the healthcare team to have 'What Matters to You' conversations. These are tailored conversations to gain a deeper understanding of an individual and establish what is important to them in their life and what brings them meaning. This information then guides decisions about their healthcare to ensure these align and result in optimal outcomes for patients and their loved ones. One important element in a time and resource limited NHS is the question of which staff members are responsible for calculating the score and having the subsequent conversation. The SPICT score is designed to be carried out by any member of the healthcare team so this role can be tailored to local needs. Discussion of SPICT scores should be embedded as part of board rounds and ICC MDT. Once the score is measured and documented, it must be acted on. A score of two or above means a patient has an expected prognosis of 12 months or less and an increasing score indicates this deterioration may be more rapid. It is important all members of the team understand this and it is appropriately communicated to the patient and their loved ones. Those with scores increasing quickly during admission should highlight those most likely to continue to deteriorate and need prioritisation for these conversations. The focus should remain on the conversation itself rather than the job role of the person doing it; depending on the skill mix and experience of staff working on the ward this could be a number of different members of the MDT.

Data from this paper shows conversations discussing poor prognosis for those cared for in ICCs were had with family/next of kin for 83% (40/48) of decedents; contrasting only 4% (2/48) of people who died in the ICC having their poor prognosis discussed with them during their final admission. This figure was statistically significantly reduced compared to the 24% of conversations in the acute trust, which aligns with national audit data showing 27% of patients had their prognosis discussed with them.¹⁸ It could be inferred this is because the patients in the ICC did not have capacity to have the conversation and therefore the team were unable to discuss directly with them. Specific data on mental capacity was not collected as part of this study; however, admission to a rehabilitation unit is reliant on the person having the cognitive ability to engage with the team and the rehab process, therefore one could assume that people did initially have capacity and poor prognosis was only recognised and communicated once the person had significantly deteriorated and was close to death, unable to have this conversation.

The data in this paper highlights the need for additional support in identifying people who are deteriorating in rehabilitation centres and talking to them and their loved ones. Introduction of a regular score that can be completed by all members of the MDT should act as a trigger for this.

As well as communicating the score with the MDT, the individual and their loved ones, it is also important to consider what happens once the person is discharged. Although this study looked retrospectively at a group of people who died in an ICC and calculated their SPICT scores, not all people 'SPICT positive' on admission would be expected to die during an inpatient stay. This paper recommends the treating team communicates directly with the patient's GP as well as the community palliative care team about those identified. In line with the latest 'Ambitions for End-of-Life Care'³ looking ahead, electronic systems, such as Electronic Palliative Care Coordination systems (EPaCCS) and integrated care records, are increasingly the solution. It is also likely that some SPICT positive people are already known to their GP. It would be helpful to consider how poor prognosis is shared between primary and secondary care, although this is beyond the scope of this paper.

There are limitations to this study. Data was only collected from people who died and it may be there were an equal or greater number of SPICT positive people who survived. However, it is important to note data shows 25% of people admitted to an ICC died within a year.⁷ As such, this conversation remains important and the fact their poor prognosis will be identified in a systematic way can only be a positive. Secondly, there were a relatively lower number of deaths in ICC compared to the acute hospital and so to collect an equal data set of 50 people, 3 years of data was required. This may limit the comparison and generalisability of results. However, ICC admission criteria remained the same during this time period. Previous admission data was collected prior to the reorganisation due to the COVID-19 pandemic so the impact is less likely to be noticeable. Nevertheless, the results still showed statistical significance. Finally, SPICT and CFS were calculated from retrospective review of the notes by clinicians who were not involved in the patient care. Although this eliminates user-variation bias, it does not allow for more nuanced signs of frailty or deterioration which may have been present. It also relies on the accuracy of documented information or conversations, which may not be fully reflective of events.

Perhaps, best practice would be to have 'What Matters To You' conversations with all people admitted to hospital and so doing a SPICT score only adds a layer of work and confusion. This may be gold standard for some; however, it is unrealistic in the context of limited time, resources and staffing within the NHS. Currently, these conversations are not happening with sufficient frequency, highlighted by the data in this paper showing only 14% of people who died across the acute hospital and ICC had their deterioration discussed with them; this is lower than the national standard of a (still low) 27%. As such, setting this as a goal would be unachievable and therefore unlikely to change current clinical practice. Although it is important to elicit end-of-life care wishes for all people, it is best to focus a limited resource at those most likely to benefit. This data also suggests that although they are more likely to be SPICT positive, those in ICCs are currently less likely to have these conversations or be seen by the specialist palliative care team and so would benefit most from the intervention. Additionally, those admitted to the ICC are often admitted in a more stable condition and have longer stays, giving time to develop relationships and have more meaningful conversations. By focusing on those who are SPICT positive and utilising the support of a skilled team it is a more realistic place to start to make a meaningful and measurable impact before considering extending to the acute hospital.

Conclusion

This paper suggests a significant proportion of people being cared for in a rehabilitative ICC are at risk of deterioration and death despite the aim being rehabilitation and clinical improvement. This deterioration seems to be recognised in a less timely manner compared to the acute hospital with less specialist palliative intervention. With the recognition that further work should be done to ensure timely communication of poor prognosis between primary and secondary care, the authors suggest a trial of a proactive approach using the SPICT tool for ongoing

assessment of people in ICCs to support identification of a deteriorating person and avoid missed opportunities for key conversations and actions.

Key messages

What is already known about the topic?

- It is important to identify those nearing end of life to have conversations about their wishes and goals of care.
- 25% of people admitted to an intermediate care setting died within a year of admission.
- Supportive and Palliative Care Indicators Tool (SPICT) is an evidence-based tool for identifying those likely to have a poor prognosis.

What this paper adds

- Statistically significant data showing people who die in an intermediate care setting are less likely to have previous admissions than those in acute hospital but more likely to meet criteria for poor prognosis.
- The same cohort are less likely to have their poor prognosis discussed with them or a referral to the Specialist Palliative Care team.

Implications for practice, research or policy

- Highlights difference in care received by people depending on whether they are cared for in an acute hospital or intermediate care setting.
- Recommendation to address this by introducing regular use of SPICT tool in intermediate care centres as a trigger to identify deteriorating patients and start important conversations about their wishes.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.fhj.2024.100136](https://doi.org/10.1016/j.fhj.2024.100136).

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