Title

Time estimates in prognostic discussions: a conversation analytic study of hospice multidisciplinary team meetings

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Abstract

Background

Recommendations state that multidisciplinary team expertise should be utilized for more accurate survival predictions. How the multidisciplinary team discusses prognoses during meetings and how they reference time, is yet to be explored.

Aim

To explore how temporality is conveyed in relation to patients' prognoses during hospice multidisciplinary team meetings.

Design

Video-recordings of 24 hospice multidisciplinary team meetings were transcribed and analysed using Conversation Analysis.

Setting/participants

65 staff participating in multidisciplinary team meetings in a UK hospice from May-December 2021.

Results

Team members conveyed temporality in three different ways. (i) Staff stated that a patient was dying as part of the patient's current health status. These formulations did not include a time reference per se but described the patient's current situation (as dying) instead. (ii) Staff used specific time period references where another specific reference had been provided previously that somehow constrained the timeframe. In these cases, the prognosis would conflict with other proposed care plans. (iii) Staff members used unspecific time period references where the reference appeared vague and there was greater uncertainty about when the patient was expected to die.

Conclusions

Unspecific time period references are sufficient for achieving meaningful prognostic talk in multidisciplinary teams. In-depth discussion and accurate prediction of patient prognoses are not deemed a priority nor a necessity of these meetings. Providing precise predictions may be too difficult due to uncertainty and accountability. The lack of staff pursuing more specific time references implies shared knowledge between staff and a context-specific use of prognostic estimates.

Key words

Multidisciplinary Care Team; Hospices; Group Meetings; Prognosis; Communication

Key statements

What is already known about the topic?

- Prognostication is important to clinical decision-making, and recommendations and clinical guidelines include involvement of the multidisciplinary team to ensure prognostic accuracy.
- No previous studies using audio and video-recordings of meeting interactions have explored how the multidisciplinary team discusses patients' prognoses.
- It is not known how hospice multidisciplinary team members use time estimates when discussing patients' prognoses during team meetings.

What this paper adds

- Multidisciplinary team members convey temporality by either describing the patient's current health status as dying, or by using specific or unspecific prognostic time period estimates.
- The multidisciplinary team use unspecific time period references when there is greater uncertainty about when a patient is expected to die.
- Multidisciplinary team members accept a given prognostic time estimate and do not pursue a more specific prognostic time estimate.

Implications for practice, theory or policy

- As the multidisciplinary team did not display an orientation towards predicting patients' exact time of dying as a priority or necessity, it needs to be further explored how the team ensures and contributes to prognostic accuracy.
- The study findings provide evidence to be used in development of future recommendations and interventions about how the multidisciplinary team discusses patients' prognoses.

Introduction

Clinical decision-making regarding discharge planning, cardio-pulmonary resuscitation, goals of care, and enrolment onto integrated care pathways crucially rely upon patients' prognoses[1]. However, providing accurate prognoses is often a difficult task. Evidence shows that clinicians' estimates are often inaccurate and over-optimistic[2-5].

Recommendations and guidelines include involvement of the multidisciplinary team in prognostic decisions[6-9], on the basis that it has been reported to improve prognostic accuracy[3, 10]. Clinicians may seek prognostic advice for social reasons, including self-affirmation and sharing of responsibility, knowing the difficulties of prognostication and concerns regarding inaccurate predictions[11, 12]. However, how multidisciplinary teams discuss prognoses remains unexplored[13].

Temporality is an essential component of prognoses. This is clear when clinicians are asked *how much time* a patient has left to live or *when* a patient might die. The importance of time is also highlighted by research focusing on prognostic accuracy[4, 14]. There are different ways of articulating prognoses with references to time[15]. The universal assumption that precise prognostic assertions are exemplars of good clinical practice warrants further interrogation. Thus, there is a need to examine how prognoses are deployed and what their functions and interactional ramifications are.

Prognostic time estimates

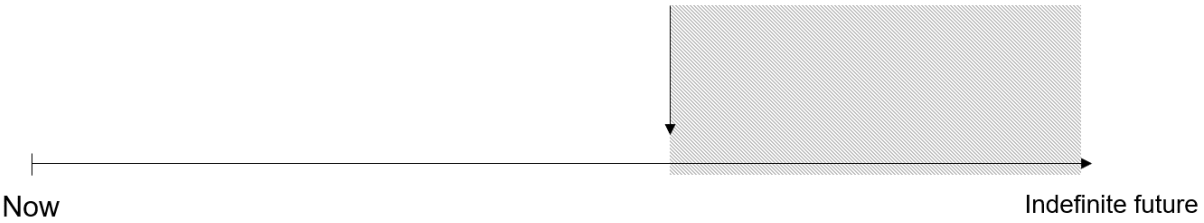
In this paper, 'time estimates' are defined as utterances conveying temporality regarding when patients are expected to die. Direct time references are "the repertoire of social and linguistic resources available to members of a given society to indicate particular points on the timeline"[17]. An example of a direct time reference is "*she might die* ***today***" where temporality is expressed using a specific time expression ("today"). Another example is a particular grammatical tense, "*she* ***is dying***", where temporality is expressed through a progressive present tense but without a specific time indicator. Instead, it refers to the sense being that the patient is dying *right now*.

A timeline continuum can aide the understanding of prognostic time estimates. One end of the continuum is the present time, the *now*, whilst the other end is the "indefinite" future. There is, within reason, an indefinite amount of future time available for a prognostic estimate. If a patient's death is expected within an hour (**Figure 1**), the arrow then indicates the time of death, and the grey marking from the arrow and onwards indicates the, now, unavailable future timepoints for the patient.

Figure 1: Patient dying in an hour

A prognosis can also be further in the future, for example a patient expected to die in 30 years. This estimate leaves more "available" time for the patient (i.e., where they will be alive), and a lower amount of unavailable time (**Figure 2**).

Figure 2: Patient dying in 30 years



Each estimate specifies a point on the timeline and hence narrows down the indefinite future. Estimates can be specific such as certain dates (i.e., *absolute time references*). These have been defined as being accessible to all through its use of shared constructs for parsing the timeline[17]. Estimates can also specify a certain timeframe such as *weeks* (i.e., *absolute categorical time references*[18]). In **Figure 3** the space between the two arrows indicates an interval where the patient is expected to die: sometime from now until some weeks in the future. These types of formulations involve a degree of uncertainty due to the bigger pool of remaining options for when the patient might die than more specific formulations leave.

Figure 3: Patient having weeks left to live

A taxonomy of interactional time referencing have been proposed, which spans from the aforementioned absolute time references to *event-relative* ones that are dependent on the knowledge shared between parties[17]. High-level recognitiality references are specific universal dates while low-level recognitional references are event-relative or simply vague and unspecific ones[17]. However, it is the participants themselves who express whether a reference conveys a satisfactory level of recognitionality[16].

Previous research has explored time references within social interaction generally[16, 17] and specifically within palliative care interactions[18]. The latter showed how clinicians used absolute categorical time references and manage uncertainty in prognostic discussions with relatives of dying patients. How hospice multidisciplinary teams use prognostic time estimates is yet to be explored.

Aim

To explore how temporality is conveyed in relation to patients' prognoses during hospice multidisciplinary team meetings.

The study was part of a wider project on prognostication of imminently dying patients (i.e., prognosis of hours or days) within specialist palliative care hospice teams.

Methods

This was a Conversation Analysis (CA) study, which involved collecting and analysing video-recordings of hospice multidisciplinary team meetings. CA is a research approach used to systematically analyse social interaction through close investigation of how participants produce turns at talk[19]. The analyses describe the interactional structure in terms of how practices, actions, and activities are organised by and between speakers.

The study protocol was registered with the Open Science Framework (OSF) on 04 June 2021 (https://osf.io/bdf3t).

Study setting

Data were collected from a UK hospice providing services for patients with advanced life-limiting diseases and consisting of an inpatient unit, day care and outpatient facilities. The inpatient unit comprised two wards with 15 beds each. A weekly one-hour multidisciplinary team meeting was held on each ward. The hospice setting was chosen due to staff-specific expertise in prognostication and the frequency with which they work with (imminently) dying patients.

Study participants

Participants were hospice staff members and other visitors attending the meetings. A variety of staff comprised the multidisciplinary team (e.g., doctors, nurses, physiotherapists, and social workers). The purpose of the meetings was to discuss and plan patient care. All staff who attended meetings during the data collection period, and were willing to provide informed consent, were eligible for the study. Patients themselves did not attend these meetings.

Participant consent

Meeting attendees were asked to read information sheets and sign a consent form either before or after the meeting. Consent was provided by 65 meeting attendees. If a staff member did not consent to participate in the study, the meeting was still recorded but their data were not analysed.

Data collection

Data were collected from May to December 2021. Only one hospice ward was operating due to COVID-19 restrictions. Two cameras and an audio-recorder were used for data collection. The researcher was present during meetings as an observer.

Data

Video-recordings of 24 meetings were collected, yielding approximately 24 hours of data. Each meeting involved 10-15 attendees.

Data management and analysis

Recordings were audibly masked by removing all participant identifying information (i.e., names and locations) before being securely stored. Sequences of talk involving prognostication were identified by one researcher and transcribed following standard CA conventions (see Supplementary File 1)[20, 21], using CLAN transcription software version 2021-04-28 or later. Single-case analyses[22] were conducted to create a collection of cases (i.e., collection analysis). Collection analyses systematically explore patterns of an interactional phenomenon[23]. Data were discussed in CA data sessions; a common practice to increase analytical validity and reliability[24].

Results

Staff conveyed temporality when discussing prognosis by: (i) describing the patient's current health status, or the use of (ii) specific (e.g., die before Monday) and (iii) unspecific (e.g., prognosis is short) time period references. These practices were based on existing literature on time references in interaction[16, 17] and further developed through the study.

Patients' current health status

Staff used formulations that involved stating patients' current situation as dying. These cases described a patient's current state and did not involve a future prediction of death *per se*. Death was mentioned as something that was happening in the moment, and the patient was very close to death.

In Excerpt 1, a doctor (DR1) and a ward manager (WAR) discuss whether a patient should stay at the hospice; a patient cannot easily be discharged from the hospice if they are in a state that requires ongoing substantial (medical) intervention. Before the excerpt, a nurse presented the patient's case, and she and other team members presented evidence of the patient's poor physical health, implying that the patient was at the very end of life.

Excerpt 1: He's dying (2021.05.19)

```
01    WAR:  okha:y (.) >so he's staying here< yea,
02          (0.2)
03    DR1:  yea: (.) he's dying.
04          (4.9)
05    WAR:  mka:y.
06          (2.2)
07    WAR:  PPC PPD here?
08          (0.3)
09    UNK:  ·th
10          (0.5)
11    NUR:  same [home home       ].
12    DR1:       [it's always been] home h[hh       ]
13    WAR:                                 [oh really],
14    SOC:  yea:.
15    DR1:  unfortunately yeah.
16          (0.2)
17    DR1:  home home home.
```

The prognostic utterance occurs in line 03 as a confirmation of the ward manager's summarising statement and tag question (*yea*) in line 01 about the patient staying in the hospice (until he dies). The prognosis seems to account for the doctor confirming the ward manager's statement about the patient staying in the hospice. Grammatically, the prognostic utterance contains the verb phrase *is dying* (i.e., utilising the present participle). This means that the patient is dying as they speak (i.e., *now*). The prognostic utterance receives a confirmation before the conversation moves on to deal with the patient's Preferred Place of Care (PPC) and Preferred Place of Death (PPD) in line 07. Here,

the prognosis is further confirmed by the doctor's usage of *unfortunately* in line 15 that seems to orient to the fact that they will not be able to meet the patient's preference to die at home.

This excerpt showed how a prognosis was provided as an account for expressing agreement with the view that the patient was not suitable for discharge. The prognosis did not provide a specific time reference. Instead, it simply involved the professional identifying that the patient was (imminently) dying. This prognostic formulation was confirmed by another staff member with a minimal response, indicating that it was sufficient and acceptable. Using a simple prognostic time estimate describing the patient's health status was common and included the expression "*x is deteriorating*".

Specific time period references

Prognoses involving specific time references such as dates or times of day only appeared when the patient's prognosis somehow conflicted with another mentioned timeframe relevant to the patient's care plans.

Excerpt 2 is from a discussion about the number of visitors allowed due to COVID-19 restrictions. Just before this excerpt, a nurse presented the patient's case and explained that she could not get much out of the patient; stating that he was deteriorating. She described the symptoms (breathlessness) and explained that he had been started on a syringe driver. Lastly, she mentioned that the doctor agreed for the family to come and stay with him, which has resulted in a long list of visitors.

Excerpt 2: he's gonna die before Monday (2021.05.19)

```
01    WAR:  [that's a very la:rge list].
02    DR1:  £is it really£.
03    WAR:  it's (.) it's about,
04          (0.6)
05    WAR:  about ten to fifteen people.
06    DR1:  IS ↑IT↑
07    DR2:  mh ((nodding))
08    WAR:  yea,
09          (1.1)
10    DR1:  that went on a bit didn't it?
11    DR2:  ((laughter))
12    WAR:  [and they got   ]_
13    DR1:  [(    that) many],
14    WAR:  and they were standing in the corridor calling them all
15          being like ↑yea come on in↑.
16    DR1:  [hahahaha    ]
17    UNK:  [((laughter))]
18    UNK:  [(uh)        ]=
19    SOC:  =that's what they'd all been saying (.) yea (.) we found
20          that conversation with the son actually.=
21    WAR: =I've had it many times saying no and I said I did say to
22          him yesterday cause he asked me yesterday I said no (.)
23          not until Monday where then you can have six named.
24    DR1:  we we wor- (.) wor- he's he's gonna die before [Monday].
25    WAR:                                                [oh is ] he=
26    WAR:  =[gonna die] okay.
```

```
27    DR1:    [he: i:    ]
28    DR1:  so that's changed.
29    WAR:  maybe we need to: (.) scale it back [from that hav-]
30    DR1:                                      [ten to        ]
31    DR1:  fifteen is more than they said to us in the room.
```

The ward manager (WAR) provides a short telling from lines 12-15 about how family members were calling other family members asking them to come into the hospice. A social worker (SOC) provides a statement agreeing with the telling from the ward manager explaining that they have experienced the same thing (lines 19-20). After having stressed that the ward manager has had this conversation with the family several times, she reports that she has told them that they cannot visit until Monday, at which time they are allowed up to six visitors at a time. This leads the doctor (DR1) to provide a prognostic utterance in line 24 with a specific time reference about death: *before Monday*. This reference specifies that the time of the patient's death is to be expected within the next four days (the meeting being held on a Wednesday). It seems to be problematic to produce such a strong or specific time reference, with the utterance being initiated with several repetitions and word cut-offs. The doctor restarts the utterance and ends up with a prognostic statement implying a strong sense of certainty. This statement seems to be prompted by the ward manager mentioning new rules being in place from Monday in lines 21-23. Thus, the first time estimate occasions the second one that then points towards a specific problem with the prior turn; this specific part of the discussion (regarding anything from Monday and beyond) is not relevant since the patient will not be alive by then. The ward manager's reply seems to indicate that she did not know that the patient was expected to die so soon. This leads the team to discuss how they might ease the hospice visiting rules in this case.

Excerpt 2 showed how the doctor's prognostic statement indicated interactional trouble (i.e., several repetitions and word cut-offs), since it implied a higher sense of certainty than other, less specific, formulations. This strong and specific time estimate was prompted by another (non-prognostic) time reference (line 23) that made the next (prognostic) time reference relevant (line 24). The specific non-prognostic time reference constrained the discussion and made certain actions related to patient care less relevant. This then prompted the need for providing a similar specific time prognostic reference to ensure that adequate plans were made aligning with the patient's prognosis. In this way, the specific prognostic time reference challenged the non-prognostic one and whether this was relevant for the discussion. Lastly, the specific prognostic reference was confirmed by another team member, thereby accepting the proposed prognosis.

The specific time reference presented in the excerpt is, however, still rather vague in terms of indicating the exact time of the patient's death; the patient could die anytime from the time of the

current interaction until Monday. In this way, this reference clearly defined a timeframe for the patient's death, but further specification did not occur.

Unspecific time period references

Staff could convey temporality through unspecific time period references. These were utterances that did not include a specific timepoint or the time references were somewhat vague. In these circumstances it appeared uncertain when the patient was expected to die.

There were several ways of making unspecific references to time in the data. In Excerpt 3, a doctor (DR2) used the formulation *her prognosis is short*.

Excerpt 3: her prognosis is short (2021.09.29)

```
01    CHA:  we: have her as unstable at forty?
02          (.)
03    CHA:  is [that]_
04    UNK:     [(hh)]
05          (0.9)
06    WAR:  ye[a  ] because we are still having (.) some=
07    NUR:    [mh.]
08    WAR:  =intervention and all.
09    DR2:  yea: [it dep]ends on what her response to the=
10    WAR:       [so s: ]
11    DR2:  =[anti]biotics is if she's still getting sicker (.)
12    DR1:   [mh. ]
13    DR2:  after she's had a few days >of antibiotics< than she
14          (0.6)
15    DR2:  (might) be deteriorating but at the moment we wou- (.)
16          she's better than she was when she was septic.
17    CHA:  right.
18          (0.1)
19    DR1:  yea.
20    DR2:  so we just need to see (.) but she's not her prognosis
21          is short.
22    HCA:  yea.
23    DR2:  and something either a big blee:d. (0.5) it was okay
24          but (that having) (.) or (.) you know (an overwhelming)
25          infection will kill her soon.
26          (1.2)
```

The chaplain (CHA) asks whether it is appropriate that they have recorded that the patient is *unstable at forty* (i.e., "Unstable" phase of illness[25] and Karnofsky performance status 40%[26]). The ward manager (WAR) confirms the chaplain's question and accounts for the assessment. A doctor (DR2) further accounts for this by explaining that it is because of the patient receiving antibiotics (lines 09-16). The doctor explains that the prognosis is dependent on the patient's response to the antibiotics in lines 09 and 11. This seems to preface and indicate uncertainty about the disease trajectory, where further information is needed to provide a more specific prognostic estimate. This is confirmed both by the chaplain and another doctor (DR1) in lines 17-19. In lines 20-21, the doctor produces the prognostic utterance with the unspecific time reference, *her prognosis is short*. This reference does

not specify a timepoint when the patient is expected to die. Instead, the statement indicates a length for the patient's prognosis, which relates to the time the patient has left to live. In lines 15-16, the doctor states that the patient is doing better, which might indicate a better prognosis. However, the prognostic utterance in lines 20-21 downgrades this by stating that the patient's prognosis is indeed short. In this way, the doctor potentially ensures that there is no misunderstanding regarding what the outcome of, *so we need to see,* will be. This utterance is confirmed by a healthcare assistant (HCA). The doctor then provides an account explaining other potential trajectories for the patient in lines 23-25. After the excerpt, the team continues talking about the difficulty with and uncertainty of this patient's case.

Excerpt 3 involved an unspecific reference to time indicating that the patient's prognosis was short, but it was not clear for the analyst what "short" meant in this circumstance. In this way, the time reference did not indicate a clear timepoint for the patient's death but was vaguer. However, this formulation was not challenged by other team members seeking a more recognisable and specific timeframe. One possible interpretation is that there was a shared understanding within the team around what a short prognosis meant – and moreover what it meant in that specific context, for this specific patient. This is one potential argument for prognostication being a context-sensitive[27] practice dependent on the information and knowledge shared between members.

Discussion

Main findings of the study

Multidisciplinary staff members could simply state that a patient was deteriorating or dying as part of the patient's current health status. These formulations did not include a time reference *per se* but rather described the patient's present situation. Specific time period references were used when another specific reference had been provided previously that constrained the timeframe in which the patient's death would occur, which conflicted with other care plans. Staff members used unspecific time period references where it appeared vague and uncertain when the patient was expected to die.

The different practices of conveying temporality were confirmed with minimal responses from other team members. Acceptance was implied by the fact that other team members did not challenge or pursue different (more specific) time estimates. This may imply shared knowledge between staff.

What this study adds

The hospice multidisciplinary team did not operate with precise prognostic predictions. Although unspecific time period references were a distinct practice of prognostic estimates, the other two practices also appeared rather vague. When team members stated that a patient *is dying,* this

indicated that the patient was imminently dying rather than the patient actually dying in the exact moment when the prognosis was articulated. The specific time period references were only specific in the sense that they indicated a timeframe in which the patient was expected to die. They still left multiple timepoints available in which the patient could be expected to die.

The findings contrast with work around accurately predicting when patients are going to die[4, 14]. Staff did not display an orientation towards predicting patients' *exact* time of dying as a priority or a necessity. The fact that they accepted the proposed prognosis, not requesting a more specific one, suggests that there was a shared understanding between professionals. It is the speakers themselves that decide what a meaningful and acceptable time reference is[16]. Recognitionality is context-sensitive and something that the *speakers* either accept or challenge[17]. Despite time references appearing vague, this was not treated as problematic by the participants themselves. Accurate prognoses are relevant for clinical decision-making; however, this was not a goal or a priority of the discussions. The team prioritised working towards shared understanding of the patient's case and what is needed (in terms of the patient's prognosis) to provide best care. These findings show a different picture of what prognostication looks like in clinical practice, aligning with the broad perspective of prognostication not necessarily involving quantified estimates[28].

The findings indicate that the team members operate with and accept rather unspecific time estimates. This indicates a context-specific and context-sensitive use of prognosis in the service of navigating care discussions and decision-making during these meetings, and furthermore that prognostic time estimates are carefully tailored to each patient case. In-depth prognostic discussions and accurately predicting patients' prognoses are not deemed a priority nor a necessity in these meetings. They seem to prioritise navigating social parameters of working towards shared understanding of the patient's case and managing the clinical decision-making process. Clinical guidelines need to consider this when developing recommendations about multidisciplinary team prognostication.

Prognostication may involve an underlying uncertainty and inability (or reluctance) to provide more specific timeframes. This was also seen in research about how hospice professionals discuss prognoses with patients' relatives[18]. Providing a specific time estimate also comes with the risk of the prognosticator being held accountable for it. It might be difficult emotionally to provide a precise prognosis as well[29]. Doctors believe that there is inherently more uncertainty associated with making predictions than with determining the patient's present state[30]. This might explain why the multidisciplinary team used time estimates in relation to the patient's current health status. Further research should investigate how the multidisciplinary team (meeting) ensures and contributes to

prognostic accuracy. More specific time estimates may appear in other types of prognostic discussions in the hospice (e.g., handover meetings), which needs further exploration.

Study strengths and limitations

Through detailed analyses of the interaction, it was shown how prognostication was carried out during multidisciplinary team meetings. The use of video-recordings ensured that findings were based on real clinical interactions. Data and preliminary analyses were discussed at multiple data sessions ensuring transcription accuracy and validation of findings.

Mouth movements could not be used for speaker clarification as participants were wearing face coverings due to COVID-19 restrictions. Thus, transcription often relied on recognising voices or making assumptions about who was speaking. Poor sound quality and background noise also complicated transcription.

As the researcher was present during the meetings, it was not possible to eliminate the possibility of researcher influence on interactions. However, it has been argued that "researcher-participants do not (necessarily) challenge the local 'naturalness' of the data"[31]. Researcher participation can be useful for fieldwork, providing evidence for the researcher's unique adequacy and for gaining access to the activity[31]. It should be noted that visitors and observers commonly participate in these meetings.

Conclusion

The multidisciplinary team conveyed temporality in different ways during their meetings. The results suggested that unspecific prognoses were sufficient for the activity being carried out. It might be that this shared understanding and institutional knowledge of palliative care patients and their disease trajectories combined with an acknowledgment of the difficulties of providing more specific time estimates, made relatively vague time references acceptable and meaningful for the team members. Future research should further explore how multidisciplinary teams ensure prognostic accuracy and how they can discuss patients' prognoses in terms of temporality in the best way possible.

Declarations

Authorship

Study design: AB, LO, NW, PS, SB

Data collection: AB

Analysis: AB

Supervision: LO, NW, PS, SB

Manuscript writing: AB

Approval of manuscript: AB, LO, NW, PS, SB

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Declaration of conflicts of interest

The authors declare that there is no conflict of interest.

Research ethics and patient consent

The study received a favourable opinion by the London – Camden & Kings Cross REC (IRAS Project ID: 276367; REC Reference Number: 20/LO/1168) on 04 December 2020.

All participants provided written informed consent to take part in the study. A form was also created where participants could withdraw their participation in the study. None of the participants requested to withdraw their participation in the study.

Patients did not participate in the multidisciplinary team meetings, and their consent was not obtained for this study. For this reason, support from the Confidentiality Advisory Group (CAG) was obtained (CAG reference: 20/CAG/0141) on 06 April 2021.

Data management and sharing

Due to the sensitive nature of the data, recordings and transcripts cannot be shared.

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References

1. Perez-Cruz PE, Dos Santos R, Silva TB, et al. Longitudinal Temporal and Probabilistic Prediction of Survival in a Cohort of Patients With Advanced Cancer. *Journal of Pain and Symptom Management* 2014; 48: 875-882. DOI: https://doi.org/10.1016/j.jpainsymman.2014.02.007.
2. Glare P, Virik K, Jones M, et al. A systematic review of physicians' survival predictions in terminally ill cancer patients. *BMJ* 2003; 327: 195-198. 2003/07/26. DOI: 10.1136/bmj.327.7408.195.

3. Gwilliam B, Keeley V, Todd C, et al. Prognosticating in patients with advanced cancer-observational study comparing the accuracy of clinicians' and patients' estimates of survival. *Annals of Oncology* 2013; 24: 482-488. DOI: 10.1093/annonc/mds341.
4. White N, Reid F, Harris A, et al. A Systematic Review of Predictions of Survival in Palliative Care: How Accurate Are Clinicians and Who Are the Experts? *PLoS One* 2016; 11: e0161407. 2016/08/26. DOI: 10.1371/journal.pone.0161407.
5. Christakis NA and Lamont EB. Extent and determinants of error in doctors' prognoses in terminally ill patients: prospective cohort study. *BMJ* 2000; 320: 469-472. 2000/03/04.
6. Maltoni M, Caraceni A, Brunelli C, et al. Prognostic factors in advanced cancer patients: evidence-based clinical recommendations--a study by the Steering Committee of the European Association for Palliative Care. *J Clin Oncol* 2005; 23: 6240-6248. 2005/09/02. DOI: 10.1200/jco.2005.06.866.
7. National Institute for Health and Care Excellence. *Care of dying adults in the last days of life*. 2015. London, UK.
8. Chu C, Anderson R, White N and Stone P. Prognosticating for Adult Patients With Advanced Incurable Cancer: a Needed Oncologist Skill. *Current Treatment Options in Oncology , 21 , Article 5 (2020)* 2020.
9. Stone P, Buckle P, Dolan R, et al. Prognostic evaluation in patients with advanced cancer in the last months of life: ESMO Clinical Practice Guideline☆. *ESMO Open* 2023; 8: 101195. DOI: https://doi.org/10.1016/j.esmoop.2023.101195.
10. Kee F, Owen T and Leathem R. Offering a prognosis in lung cancer: when is a team of experts an expert team? *J Epidemiol Community Health* 2007; 61: 308-313. 2007/03/21. DOI: 10.1136/jech.2005.044917.
11. Kennedy J, Kleinmuntz DN and Peecher ME. Determinants of the justifiability of performance in ill-structured audit tasks. *J Accounting Res* 1997; 35: 105-123. DOI: Doi 10.2307/2491456.
12. Yaniv I and Milyavsky M. Using advice from multiple sources to revise and improve judgments. *Organizational Behavior and Human Decision Processes* 2007; 103: 104-120. DOI: 10.1016/j.obhdp.2006.05.006.
13. Bruun A, Oostendorp L, Bloch S, et al. Prognostic decision-making about imminent death within multidisciplinary teams: a scoping review. *BMJ Open* 2022; 12: e057194. DOI: 10.1136/bmjopen-2021-057194.
14. Higginson IJ and Costantini M. Accuracy of prognosis estimates by four palliative care teams: a prospective cohort study. *BMC Palliative Care* 2002; 1: 1. DOI: 10.1186/1472-684X-1-1.
15. Chu C, White N and Stone P. Prognostication in palliative care. *Clinical Medicine* 2019; 19: 306-310. DOI: http://dx.doi.org/10.7861/clinmedicine.19-4-306.
16. Raymond CW and White AEC. On the recognitionality of references to time in social interaction. *Language & Communication* 2022; 83: 1-15. DOI: https://doi.org/10.1016/j.langcom.2021.11.001.
17. Raymond CW and White AEC. Time Reference in the Service of Social Action. *Social Psychology Quarterly* 2017; 80: 109-131. DOI: 10.1177/0190272516689468.
18. Anderson RJ, Stone PC, Low JTS and Bloch S. Managing uncertainty and references to time in prognostic conversations with family members at the end of life: A conversation analytic study. *Palliative Medicine* 2020; 34: 896-905. DOI: 10.1177/0269216320910934.
19. Stivers T and Sidnell J. Introduction. In: Sidnell J and Stivers T (eds) *The Handbook of Conversation Analysis*. 2012, pp.1-8.
20. Jefferson G. Glossary of transcript symbols with an introduction. In: Lerner GH (ed) *Conversation Analysis: Studies from the first generation*. Amsterdam/Philadelphia: John Benjamins Publishing Company, 2004, pp.13-31.
21. Hepburn A and Bolden GB. The Conversation Analytic Approach to Transcription. In: Sidnell J and Stivers T (eds) *The Handbook of Conversation Analysis*. 2012, pp.57-76.

22. Pomerantz A and Fehr BJ. Conversation Analysis: An Approach to the Study of Social Action as Sense Making Practices. In: van Dijk TA (ed) *Discourse as Social Interaction*. London: Sage Publications, 1997, pp.64-91.
23. Hoey EM and Kendrick KH. Conversation Analysis. In: de Groot AMB and Hagoort P (eds) *Research Methods in Psycholinguistics and the Neurobiology of Language: A Practical Guide*. Wiley Blackwell, 2017, pp.151-173.
24. Stevanovic M and Weiste E. Conversation-analytic data session as a pedagogical institution. *Learning, Culture and Social Interaction* 2017; 15: 1-17. DOI: https://doi.org/10.1016/j.lcsi.2017.06.001.
25. Mather H, Guo P, Firth A, et al. Phase of Illness in palliative care: Cross-sectional analysis of clinical data from community, hospital and hospice patients. *Palliative medicine* 2018; 32: 404-412. 2017/08/16. DOI: 10.1177/0269216317727157.
26. Schag CC, Heinrich RL and Ganz PA. Karnofsky performance status revisited: reliability, validity, and guidelines. *J Clin Oncol* 1984; 2: 187-193. 1984/03/01. DOI: 10.1200/jco.1984.2.3.187.
27. Seedhouse P. Conversation Analysis as Research Methodology. In: Richards K and Seedhouse P (eds) *Applying Conversation Analysis*. London: Palgrave Macmillan UK, 2005, pp.251-266.
28. Thomas JM, Cooney LM and Fried TR. Prognosis as Health Trajectory: Educating Patients and Informing the Plan of Care. *Journal of General Internal Medicine* 2021; 36: 2125-2126. DOI: 10.1007/s11606-020-06505-7.
29. Hui D. Prognostication of Survival in Patients With Advanced Cancer: Predicting the Unpredictable? *Cancer Control* 2015; 22: 489-497. 2015/12/19. DOI: 10.1177/107327481502200415.
30. Christakis NA. *Death foretold: prophecy and prognosis in medical care*. London: The University of Chicago Press, 1999.
31. Hofstetter E. Analyzing the researcher-participant in EMCA. *Social Interaction Video-Based Studies of Human Sociality* 2021; 4. DOI: 10.7146/si.v4i2.127185.