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Prognosis communication with older patients with multimorbidity: Assessment after an educational intervention

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Abstract

Objective—To assess how internal medicine residents incorporated prognosis to inform clinical decisions and communicated prognosis in primary care visits with older patients with multimorbidity after an educational intervention, and resident and patient perspectives regarding these visits.

Methods—Assessment used mixed-methods. We assessed the frequency and content of prognosis discussions through residents' self-report and qualitative content analysis of audio-recorded clinic visits. We assessed the residents' perceived effect of incorporating prognosis on patient care and patient relationship through a resident survey. We assessed the patients' perceived quality of communication and trust in physicians through a patient survey.

Results—Twenty-one clinic visits involved 12 first-year residents and 21 patients. Residents reported incorporating patients' prognoses to inform clinical decisions in 13/21 visits and perceived positive effects on both patient care (in 11/13 visits) and patient relationship (in 7/13 visits). Prognosis communication occurred in 9/21 visits by self-report but only in 6 of these 9 visits by content analysis of audio-recordings. Patient ratings were high regardless whether or not prognosis was communicated.

Conclusion—After training, residents often incorporated patients' prognoses to inform clinical decisions but sometimes did so without communicating prognosis to the patients. Both residents and patients reported positive perceptions regarding the visits.

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INTRODUCTION

Prognosis is an important consideration in the care of older patients with multiple chronic conditions (multimorbidity) and heterogeneous health trajectories because overall prognosis, or life expectancy, critically informs a number of clinical decisions in primary care that have long lag time to benefit but potential short-term harms.¹⁻¹² A growing body of research and clinical practice guidelines recommend incorporating prognosis to inform clinical decisions about interventions such as cancer screening and glycemic control for diabetes mellitus in older adults.¹⁻¹¹ However, clinicians lack adequate training in determining and communicating prognosis.¹³ Existing prognosis curricula are limited to palliative care or oncology;¹⁴⁻¹⁹ we did not find any described curriculum that focuses on incorporating and communicating prognosis in the care of older patients with multimorbidity. Prior to this study, we developed an innovative curriculum that teaches internal medicine residents how to incorporate prognosis to inform clinical decisions and communicate prognosis with older patients with multimorbidity in primary care. Detailed description of the curriculum and evaluation outcomes are described elsewhere, showing that the curriculum was highly rated and resulted in significant improvement in the residents' knowledge and skills as compared to a control group.^{20,21} In this study, we aimed to assess the feasibility and acceptability of applying the prognostic skills that were taught in the curriculum in actual patient encounters.

Most literature on prognosis communication focuses on patients who are clearly at the end of life or with specific terminal illnesses.²²⁻²⁷ A few studies involving older adults who are not at the end of life found heterogeneous perspectives regarding the role of prognosis in clinical decisions such as stopping cancer screening.²⁸⁻³² One study suggested that recommendation to discontinue cancer screening may negatively affect the patient's trust in the physician.³³ This recognized uncertainty about the impact of prognosis communication among older patients with multimorbidity may be a barrier to dissemination of the recently developed curriculum; therefore, in this project we aimed to assess the feasibility and acceptability of incorporating and communicating prognosis during primary care visits with older patients with multimorbidity, eliciting perspectives from both the residents and patients.

METHODS

PARTICIPANTS AND SETTING

We implemented the curriculum with the first-year internal medicine residents at our institution, an urban academic center. The residents learned to use evidence-based tools to assess prognosis and practiced communication skills through role play exercises. They were taught to: 1) discuss the benefits and harms of a clinical decision that is framed by prognosis (e.g. to discuss discontinuing cancer screening in a patient with limited prognosis) where the prognosis may be alluded to but not explicitly discussed, and 2) discuss the patient's prognosis explicitly. The study took place from the curriculum completion (March 2014) to the end of the first year of residency training (June 2014). All residents who received the curriculum and had scheduled clinic sessions in the resident clinic during the study period were eligible. Patients were eligible if they were ≥ 60 years old, had ≥ 2 of the 30 conditions in the Elixhauser comorbidity index,³⁴ and were patients of those residents who consented

to participate in the study. Patients were excluded if they were non-English speaking or not able to provide informed consent.

PROCEDURES

At the end of the prognosis curriculum, eligible residents were recruited individually in person by a research assistant and written informed consents were obtained. Prior to an eligible patient's scheduled visit, each resident was prompted via email to consider and incorporate the patient's prognosis into clinical decisions and communication if appropriate. On the day of the clinic visit, eligible patients were recruited in person by a research assistant; written informed consents were obtained. The clinic visit was audio-recorded if both patient and resident consented to participate. The audio-recordings were made by a research assistant who turned on the recorder and left it in the clinic room at the beginning of the visit; the research assistant was not present during the visit and retrieved the recorder at the end of the visit.

Each resident was asked to complete an online survey within 24 hours of the visit. Patients received a survey in person immediately after the visit. Patient characteristics were also collected from medical record review.

This project was approved by an institutional review board.

MEASURES

We audio-recorded the clinic visits to qualitatively examine the content and frequency of discussions related to prognosis.

The resident survey asked whether or not the resident incorporated the patient's prognosis in any clinical decision, and if so, asked the resident to rate on a 5-point Likert scale how incorporating prognosis affected patient care quality and patient relationship (1=extremely negatively, 5=extremely positively). Survey also asked whether or not the resident communicated prognosis with the patient during the visit.

The patient survey assessed perceived quality of communication using the 6-item General Communication Skills scale from the Quality of Communication instrument (Cronbach alpha= 0.91).³⁵ The survey also assessed trust in the physician using the 10-item Wake Forest Physician Trust Scale (Cronbach alpha = 0.93),³⁶ and asked patients if their trust in the physician changed as a result of the visit on a 5-point Likert scale (1=significantly decreased trust, 5=significantly increased trust). The patient survey also included questions on patient demographic characteristics including race, ethnicity, educational level, socio-economic level, and questions on health and functional status and health literacy.^{37,38} Patient characteristics including age, gender, number of chronic conditions according to the Elixhauser index,³⁴ and number of medications were collected from medical record review.

ANALYSIS

Audio-recordings of the clinic visit discussions were transcribed verbatim and analyzed using textual data analysis software (ATLAS.ti Scientific Software Development, Berlin, Germany). We used the directed content analysis approach to code and describe the content

and frequency of discussions related to prognosis.^{39,40} A preliminary coding framework was iteratively refined and applied to analyze the data using the constant comparative approach.^{39,41} Revisions to the coding scheme were applied to all previously coded transcripts. Two investigators (NS, AR) independently coded all transcripts while blinded to the resident survey results and reconciled differences by consensus until 100% agreement was reached. The final coding scheme included whether the residents made any comments related to prognosis, whether the comments were in the context of a clinical decision, whether the comments described prognosis quantitatively (e.g. “the chance of living another 10 years is 50/50”), and how the patient responded to the comments. We defined prognosis-related comments to include: “life expectancy”, “prognosis”, “mortality/mortality rate”, “likelihood or chance to live/die”, “survival”, “live or keep going longer/as long as possible/for (an amount of time)”, “risk/effect long-term” “death/dying”. After the transcript coding was complete, we compared findings of prognosis communication in the audio-recordings with the residents’ self-report of prognosis communication.

Resident survey results are presented using descriptive statistics. Patient survey results are stratified according to a) whether or not the resident reported incorporating prognosis in clinical decisions in the visit, and b) whether or not prognosis was communicated in the visit (prognosis communication was defined as present if resident self-reported prognosis communication and we identified prognosis-related comments in the audio-recording). Comparisons of the General Communications Scale and the Physician Trust Scale scores were conducted using two-sample t-test.^{35,36} Comparisons of the patients’ ratings on change in trust were conducted using Fisher’s exact test. Analysis were conducted in STATA 12.0 (StataCorp LP, College Station, TX).

RESULTS

Twenty first-year internal medicine residents received the curriculum in 2014; of these, 12 had visits with eligible patients during study period. All 12 residents (4 women, 8 men) and 21 of 29 eligible patients participated in 21 audio-recorded clinic visits. Each resident had between 1-4 recorded visits. Resident surveys were completed after each of the 21 clinic visits (100% response rate). For two clinic visits the residents took >2 weeks to complete the survey; excluding these outliers, the average time to response was 1.4 days after the visit. Twenty of the 21 patients completed the patient surveys (95% response rate). Table 1 summarizes patient characteristics. A significant portion of the patients reported problems with mobility, pain, usual activities, and screened positive for low health literacy.^{37,38}

In 13 of 21 visits, the residents reported incorporating the patients’ prognoses in clinical decisions and perceived doing so to have positive effect on both the quality of patient care and their relationship with the patient (Table 2).

In 9 of 21 visits the residents reported that they communicated prognosis during the visit, in 6 of these 9 visits we coded prognosis-related comments in the audio-recordings but we did not identify any prognosis-related comments in the other 3 visits. In 5 of the 6 visits, the prognosis-related comments were in the context of clinical decisions, such as cancer screening, proceeding to surgery, and quitting smoking. In 2 visits, the residents mentioned

quantitative descriptions of prognosis. Below is a representative example of a resident discussing a patient's life expectancy quantitatively in the context of screening colonoscopy.

Resident: "It's not unreasonable to think that you would live another 10 years but I also think that given all these heart conditions... I also wouldn't be surprised if it wasn't 10 years. I think [the chance of you living another] 10 years might be 50/50, that said I want to do everything I can to make sure you are around as long as possible.... What you were saying earlier about not getting a colonoscopy I think that's totally reasonable because honestly if it's gonna be something I don't think it's gonna be colon cancer."

We coded for how patients responded to the residents' prognosis comments in the audio-recordings and did not identify any theme of alarm or distress in reaction to the mention of prognosis. In one visit where the resident showed the patient how smoking status affects her predicted mortality rate to motivate patient to quit smoking, the patient did mention that the mortality rate for a smoker is "*scary*" but showed no distress towards the resident for discussing the topic. This patient did decide to quit smoking and told the resident: "*you're about the best doctor I've had.*"

Patient survey results are summarized in Table 3. Patients generally rated the visit communication quality highly (mean 59.3/60) and trust in the physician highly (mean 49.0/50).^{35,36} Some patients reported increased physician trust as a result of the visit (1/20 reported "somewhat increased trust", 7/20 reported "significantly increased trust") while other patients reported no change in trust. Patient ratings did not significantly differ whether or not the resident reported incorporating prognosis in clinical decisions. Patient ratings also did not significantly differ whether or not the resident communicated prognosis, with trend towards higher ratings in visits where prognosis was communicated than visits where prognosis was not communicated.

DISCUSSION

We found that it was feasible to incorporate and communicate prognosis in primary care visits with older patients with multimorbidity and that the internal medicine residents and the patients had positive perceptions regarding these visits. This study adds to the literature as we did not find previous studies describing how clinicians communicate prognosis in primary care settings with older patients with multimorbidity, or how patients respond to and perceive these discussions.

We found that after the residents were taught and prompted to incorporate prognosis in clinical decisions, they did so in the majority of the study visits, suggesting that applying this skill that was taught in the prognosis curriculum was feasible in primary care visits. Without a gold standard to assess all the specific clinical scenarios in which prognosis should inform clinical decisions, we could not assess how optimally this skill was applied as we could not determine if prognosis should have been incorporated in clinical decisions during the other visits. When the residents incorporated the patients' prognosis to inform clinical decisions, they communicated the prognosis to patients less than half of the time. This suggests that a majority of the time that residents did not verbalize their consideration

of prognosis to patients. In a needs-assessment study prior to the implementation of the prognosis curriculum, we characterized the baseline practice of internal medicine residents in their care of older patients with multimorbidity and found that the residents did not initiate any discussion on overall prognosis and missed opportunities to address patients' comments about overall prognosis.⁴² Our finding in this study that the residents, when taught and prompted to do so, did communicate prognosis some of the time is suggestive that prognosis communication can be taught and feasibly applied in primary care visits. Although recommendations mention that clinicians should frame clinical decisions in the context of prognosis,^{3,7-11} the ideal frequency and clinical scenarios in which prognosis should be explicitly discussed is not clear. Future work will address barriers to appropriate prognosis communication and clarify patient perspectives on when and how patients prefer to receive prognosis communication in primary care.

We found that patient perceptions of the communication quality and trust in the physician did not differ whether or not prognosis was incorporated or communicated. In this small pilot study we were not powered to detect a significant difference but the finding of a trend towards more positive ratings when prognosis was communicated is reassuring that such practices did not negatively impact patients; this is confirmed by positive patient responses in the qualitative analysis. Our finding that incorporating and communicating prognosis were acceptable, and in fact, perceived positively by both the residents and patients lends support to dissemination of the prognosis curriculum and alleviates concern about the uncertain impact prognosis communication may have on patients. Future work needs to examine how to sustain the application of these prognostic skills in routine clinical practice. Changes to the clinical practice infrastructure, in addition to clinician education, may be needed to effect long-term behavior changes in clinicians. One example intervention we envision may be a prompt, generated by the electronic medical system at the point of care, for clinicians to consider the patient's prognosis in clinical decisions.

This project has several limitations. The pilot study involved a small number of residents and patients at one institution and may not reflect experiences elsewhere. We plan to assess the relevant outcomes in larger populations after dissemination of the curriculum. Second, there are no validated instruments to specifically assess the quality of prognosis communication in primary care; one validated instrument asks about prognosis discussion in the context of assessing quality of communication at the end-of-life and is not applicable for this study.³⁵ Therefore, we only assessed general communication quality and trust in the physician. Third, there may be recall bias since for some of the visits the residents did not complete the survey till several days later. Lastly, we did not have a comparison group or baseline assessment of patient perspectives. There may have been halo effect in the patients' high ratings that may decrease our ability to detect changes associated with the presence or absence of prognosis communication.

Older adults with multimorbidity are a heterogeneous population; incorporating prognosis in the care of these patients helps differentiate those patients who have limited prognosis and inform decision making for the whole population.¹¹ Clinicians currently lack adequate training.¹³ Although prognosis communication is a sensitive topic that clinicians often are reluctant to broach,⁴³ we demonstrate that after an educational intervention, the residents

can feasibly apply the learned skills to incorporate and communicate prognosis in primary care visits with older adults with multimorbidity, with positive perceptions from residents and patients regarding the visits. Efforts to address the educational gap in incorporating and communicating prognosis are critical to bring about practice changes to improve the care of older adults with multimorbidity.

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Table 1Patient participant characteristics^a

Characteristic	Data Mean (SD) / No. (%)
Age, year	67.3 (7.1)
Female sex	9 (43%)
Race	
- White	14 (67%)
- African American	6 (28%)
- Other	1 (5%)
Self-reported educational level	
- Did not complete high school	9(45%)
- Completed high school	6 (30%)
- <4 year college	2 (10%)
- Completed college or have a graduate degree	3 (15%)
Self-assessed socioeconomic status	
- Comfortable	5 (25%)
- Enough to make ends meet	7 (35%)
- Not enough	8 (40%)
Number of chronic conditions ³⁴	4.0 (1.5)
Number of medications	12.0 (5.3)
Low health literacy ³⁸	8 (40%)
Self-report of some problems in the following areas, ³⁷ No. (%):	
- mobility	14 (70%)
- self-care	2 (10%)
- usual activities	8 (40%)
- pain	10 (50%)
- anxiety	5 (20%)

^a A total of 21 patients participated in the study. One of the 21 patients did not complete the survey that assessed self-reported educational level, socioeconomic status, health literacy level, and health status; the sample size for these questions was 20 instead of 21.

Table 2

Residents' self-reported practices and perceptions regarding prognostication in primary care visits with older patients with multimorbidity^a

Survey questions and responses	Frequency (%)
Did you incorporate prognosis in any of this patient's care decisions?	
Yes	13/21 (61%)
No	8/21 (38%)
Did you communicate prognosis during the visit?	
Yes	9/21 (43%)
No	12/21 (57%)
How did incorporating prognosis in the care decisions of this patient affect the quality of patient care? ^b	
1=extremely negatively	/
2=somewhat negatively	/
3=neutral	2/13 (15%)
4=somewhat positively	10/13 (77%)
5=extremely positively	1/13 (7%)
How did incorporating prognosis in the care decisions of this patient affect your relationship with the patient? ^b	
1=extremely negatively	/
2=somewhat negatively	/
3=neutral	6/13 (46%)
4=somewhat positively	6/13 (46%)
5=extremely positively	1/13 (7%)

^a All residents responded to the survey after each of the 21 clinic visits. N=21.

^b These questions only applied if the resident answered "Yes" to the question "Did you incorporate prognosis in any of this patient's care decisions?" N=13.

Table 3

Patient perspectives on communication quality and trust in physicians following primary care visits in which residents were prompted to incorporate and communicate prognosis

	Mean (SD) / Freq. (%)			<i>p^a</i>
	Overall ^b	Incorporated prognosis to care decisions ^c		
		Yes	No	
General Quality of Communication ³⁵ (6 items, maximum score 60)	59.3 (1.74)	59.5 (1.24)	59 (2.14)	0.52
Trust in Physician ³⁶ (10 items, maximum score 50)	49 (2.04)	49.1 (1.56)	48.4 (2.62)	0.46
Change in trust				
1=significantly decreased	/	/	/	0.63
2=somewhat decreased	/	/	/	
3=no change	12/20 (60%)	8/12 (67%)	4/8 (50%)	
4=somewhat increased	1/20 (5%)	/	1/8 (13%)	
5=significant increased	7/20 (35%)	4/12 (33%)	3/8 (37%)	
		Communicated prognosis ^{d,e}		
		Yes	No	
General Quality of Communication ³⁵ (6 items, maximum score 60)		59.7 (0.82)	59.1 (1.88)	0.52
Trust in Physician ³⁶ (10 items, maximum score 50)		49.8 (0.41)	48.4 (2.27)	0.14
Change in trust				
1=significantly decreased		/	/	0.18
2=somewhat decreased		/	/	
3=no change		2/6 (33%)	10/14 (71%)	
4=somewhat increased		/	1/14 (7%)	
5=significant increased		4/6 (67%)	3/14 (21%)	

^a Comparisons of the General Communications Scale and the Physician Trust Scale scores were conducted using two-sample t-test.^{35,36} Comparisons of the patients' ratings on change in trust were conducted using Fisher's exact test.

^b One of the 21 patients did not complete the survey so sample size for patient surveys is 20.

^c In 12/20 visits the residents answered "Yes" to incorporating prognosis to inform clinical decisions; in 8/20 visits the residents answered "No" to incorporating prognosis to inform clinical decisions.

^d Prognosis communication was defined as present if resident self-reported prognosis communication and we identified prognosis-related comments in the audio-recording.

^e In 6/20 visits, prognosis communication, as defined above, was present; in 14/20 visits prognosis communication was not present.