NEJM Catalyst | Innovations in Care Delivery

ARTICLE

Successful Strategies for Operationalizing Goals-of-Care Documentation

Matthew J. Gonzales, MD, FAAHPM, Nusha Safabakhsh, MS, MBA, Suzanne Engelder, LCSW, Deborah Unger, MD, FAAHPM, Ira Byock, MD, FAAHPM

Vol. 6 No. 6 | June 2025

DOI: 10.1056/CAT.24.0359

Goals-of-care (GOC) conversations are critically important to ensure that clinical teams and health systems know what matters to their patients, enabling treatment plans to be aligned with patients' goals. However, because many conversations are ad hoc and clinician dependent, patients with serious medical conditions often do not have GOC conversations documented in their health record, either because these conversations did not occur or because they simply were not entered into the health record. The authors present details of a multiyear, systematic effort that contributed to one health system's substantial increase in the number of documented conversations that met minimum specification criteria across the 51 hospitals involved in the health system's initiative. Over the period from January 1, 2024, to December 31, 2024, 8,533 out of 10,063 (84.8%) of patients who were in an ICU for 5 or more days had a documented GOC conversation in the electronic health record at some point between hospital admission and prior to the fifth ICU day. This compares with a preintervention rate of just 555 out of 8,143 (6.8%) of patients who were in an ICU for 5 or more days having a documented GOC conversation in the period from January 1, 2016, to December 31, 2016. Essential strategies included centering efforts within the organization's mission and vision, partnering with clinical leaders to set strong quality standards and corresponding metrics, easing documentation within the electronic health record, and designing and implementing effective communication skills–building workshops.

Introduction

Conversations with patients regarding their medical condition and treatment options, as well as personal preferences and priorities, are core elements of shared decision-making and ethically sound, high-quality care.[1-3] At present, however, many people with serious, potentially life-limiting illnesses lack documentation of shared decision-making processes, including goals-of-care (GOC) conversations, in their health records.[3,4]

Multiple health systems have mounted efforts to increase the frequency of conducting and documenting GOC conversations.[5-9] We present details of a multifaceted, multiyear initiative that has contributed to improved and sustained performance in documenting GOC conversations among patients with serious medical conditions.

Phase 1. Create and Deploy

In 2014, the Institute for Human Caring (IHC) was founded to advance person-centered care by embedding principles and basic skills of palliative care within mainstream care across Providence, a not-for-profit health system in the western United States that provides 29 million patient visits annually with 122,000 caregivers across 51 hospitals and 1,000 clinics. A central part of the institute's work has been to elevate goal-aligned care as a strategic priority of Providence. Since the institute's founding, we have tracked year-over-year improvements in the number and quality of documented GOC conversations within the system's hospitals. In 2024, we measured 102,066 GOC conversations documented within patient health records associated with an adult admission to the hospital (Figure 1). This represents 27% of the 2024 adult nonobstetric admissions to an acute care hospital within our system (102,066 out of 376,586).

Below, we describe key elements of IHC's GOC initiative, our initial pilot tactics, lessons and iterative enhancements of our multistate implementation, and future directions.

Pilot Project

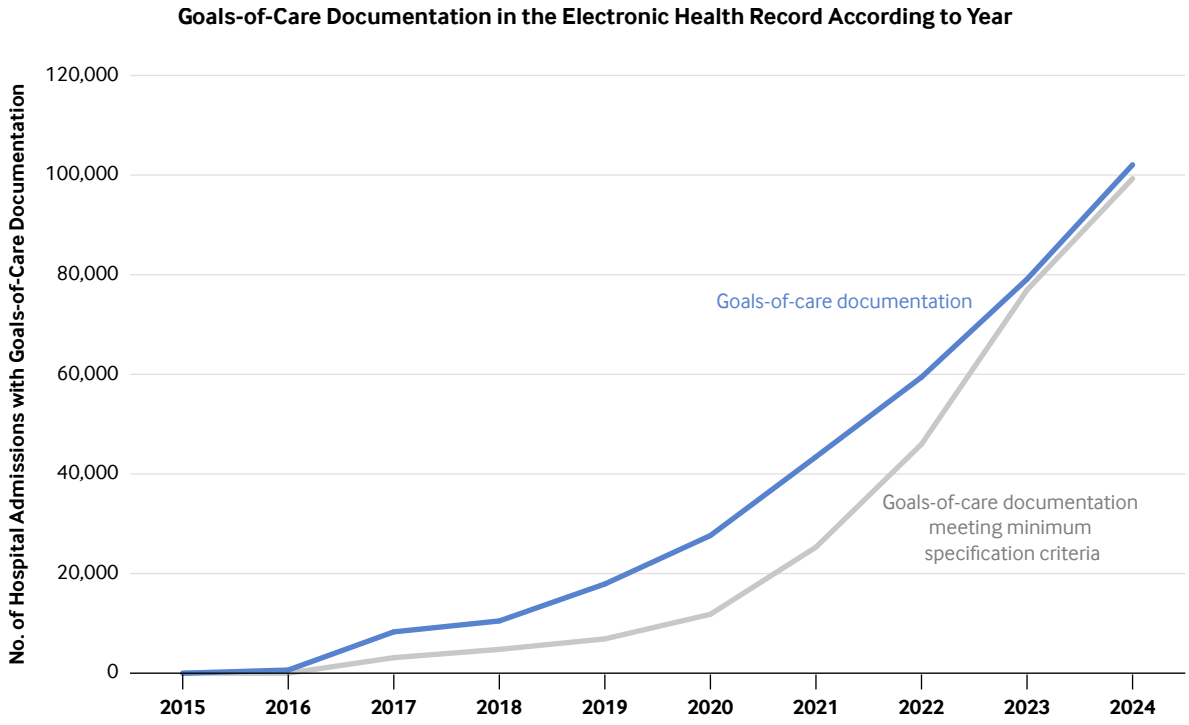
Focused work began in 2015 with two acute care hospitals in southern California with a combined capacity of 510 licensed beds. Interviews with practicing physicians and nurses revealed broad recognition of the importance of GOC conversations. However, clinicians said that they often felt underprepared and inadequately skilled to conduct meaningful conversations with seriously ill patients about achievable health goals and their personal preferences and priorities. In addition, logistical challenges of documenting and locating these conversations in the electronic health record (EHR) were identified as significant impediments.

To address the perceived gaps in clinician knowledge and skills, in 2015, we adapted the Ariadne Labs Serious Illness Conversation Guide (SICG) and accompanying training for use within any hospital in the health system, but we focused initially on our two acute care pilot hospitals.[10] The SICG program provides a road map for clinicians to follow when having GOC conversations.[10-12] We held weekly advanced communication trainings (ACTs) for 2.5 hours, which included a 40-minute didactic presentation of the ethics and clinical bases for goal-

FIGURE 1

Goals-of-Care Documentation in the Electronic Health Record, by Year

This figure depicts the annual total number of adult hospital admissions with goals-of-care (GOC) documentation (blue line) and the annual number of adult hospital admissions with GOC documentation that meets our minimum specification criteria (gray line), distributed by the year in which the documentation was completed. Note that the share meeting the minimum criteria increased from 37.6% (3,119 out of 8,296) in 2017 to 97.3% (99,280 out of 102,066) in 2024. The minimum specification criteria, created by Providence clinical leadership in 2020, required that the documentation specify who participated in the conversation; denote the current general level of medical treatments desired; and have at least a brief description of what was discussed. Importantly, the percentage of all adult nonobstetric admissions to an acute care facility with a documented GOC conversation increased from 2% (8,296 out of 382,067) in 2017 to 27% (102,066 out of 376,586) in 2024.



Source: The authors

aligned care and an overview of pertinent communication skills; a 20-minute demonstration video; and 60 minutes of hands-on role-play exercises in which participants practiced using the SICG in GOC conversations. These components of the training were followed by a 20-minute debriefing and a 10-minute introduction to EHR documentation. Our initial test of change, from October 2015 to February 2016, focused on communication training for hospital medicine and critical care physicians. This resulted in negligible progress in documentation. From February 2016 to July 2017, we expanded ACT sessions to nurses from all acute care (floor, step-down,

and ICU) and observed improved GOC documentation (15 documented GOC conversations in February 2016 as compared with 203 documented GOC conversations in July 2017). Within these two pilot hospitals, over 2 years (October 2015 to September 2017), we trained 597 nurses (91% of the active nursing staff) as well as 68 practicing hospitalists or intensivist physicians. To support application of these new communication skills, we assigned two nonclinical program managers to ICUs and hospital floors to round daily with nursing leadership for the purpose of problem-solving and enhancing EHR workflows. These program managers rounded Monday through Friday with clinical teams and provided real-time feedback on whether or not GOC documentation had been completed. They also assisted clinicians with at-the-elbow informatics support, detailing how best to view prior GOC documentation, as well as how to update it with new documentation.

> *"A documented conversation counted toward the quality measure if it was recorded at some point between hospital admission and the fifth day in the ICU."*

To address the logistical barriers to EHR documentation, in August 2015, we collaborated with the system's information services team to develop a stand-alone and uniquely identifiable GOC note. This allowed clinicians to easily find and review prior GOC conversations and to seamlessly document current conversations. Prior to this GOC note initiative, which went live in October 2015 at 36 hospitals, there had been no consistent or reliable method for identifying GOC conversations in patients' health records.

At the close of the 2-year, two-hospital pilot, 5,141 GOC conversations were documented in the EHR for 19,972 adult nonobstetric admissions at the two hospital pilot sites (25.7%).

Phase 2. Grow and Refine

Building on this progress, we extended our focus to the system's 51 hospitals across 7 western states.

Broadened Focus

We presented our experience with the pilot initiative to physician and nursing leaders at local-, regional-, and enterprise-level committees. With their support, in January 2019, the Providence system's executive leadership adopted a formal proposal by the IHC to make goal-aligned care a strategic priority. Documentation of GOC conversations became a systemwide quality measure. Specific targets were set for the proportion of patients with an ICU stay of 5 or more days who had a GOC conversation documented. A documented conversation counted toward the quality measure if it was recorded at some point between hospital admission and the fifth day in the ICU. Initial thresholds were set relatively low, starting at 31%, with a planned yearly increase to reach a threshold in year 5 of 65%, and a stretch goal of 90%. Importantly, while we focused on the hospital's most seriously ill patients (i.e., an ICU stay of 5 or more days), we hoped that

improvements in ICU-based GOC documentation would drive increases across other hospital units as well. Thereafter, iterative enhancements in both EHR functionality and ACTs were intended, in part, to reinforce a sense of collaboration between clinicians and the IHC leaders of this initiative.

The percentage of patients in the ICU with a documented GOC conversation by the fifth ICU day has steadily risen, leading to widespread increases in the number of GOC conversations documented for hospitalized patients enterprise-wide (Figure 1). From January to December 2024, across all 51 Providence acute care hospitals, 8,533 out of 10,063 (84.8%) patients with an ICU length of stay of 5 or more days had a documented GOC conversation.

In 2024, of the 45 hospitals with ICUs, 38 hospitals exceeded the threshold target of 65%, with 20 hospitals surpassing 90%, which was designated as outstanding performance. From 2015 to 2024, palliative care was consulted for 32% (111,871 of 348,993) of hospitalized patients with GOC documentation, illustrating that the majority of the GOC documentation was performed by clinicians other than those who practice specialty palliative care. These data reflect changes in practice toward routinizing GOC conversations for seriously ill patients.

> *"In 2024, of the 45 hospitals with ICUs, 38 hospitals exceeded the threshold target of 65%, with 20 hospitals surpassing 90%, which was designated as outstanding performance."*

Key Design Elements of Our Goals-of-Care Initiative

We consider five distinct features of the design and implementation of our GOC initiative to have been key to its successful adoption:

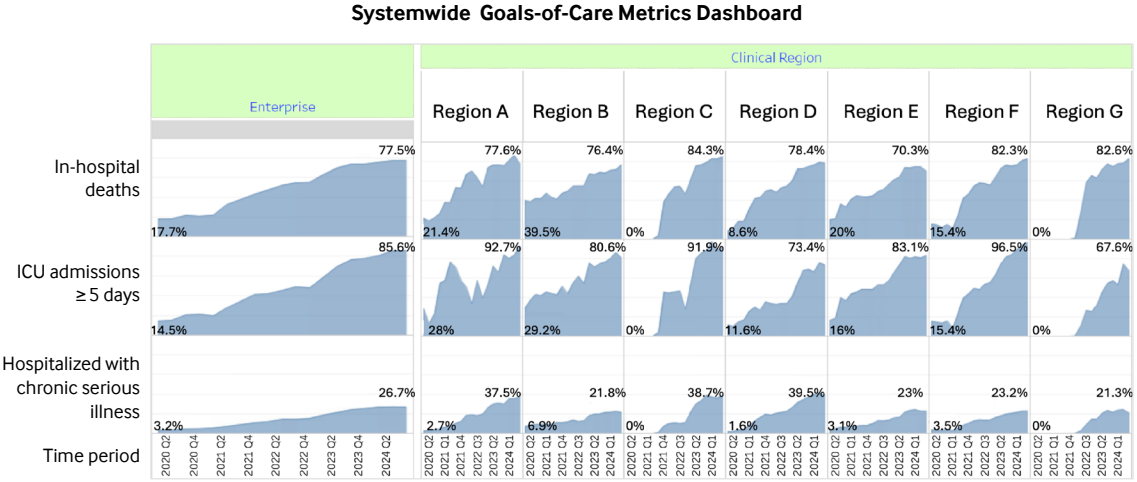
1. Recognizing Providence as a mission-driven organization, it was important to position the GOC initiative as a project to advance the mission, values, and strategic objectives of the organization. By formally identifying goal-aligned care as essential to quality, the GOC initiative's dashboards and program updates became a regular agenda item for clinical director meetings at all levels of the Providence organization.

2. Proposed quality standards and improvements in clinical practice were based on published recommendations of the specialties of our clinical partners and informed by clinical care–specific guidance from Choosing Wisely.[13,14] With the support of clinical leaders of hospital medicine, critical care, and nursing, Providence executive governance bodies formally established a quality standard stating that adult patients with an ICU stay of 5 or more days should have a GOC conversation conducted and documented during that hospitalization prior to the fifth ICU day. No single discipline was solely responsible for GOC conversations; instead, the focus was patient-centered, fostering shared responsibility among the clinical team. Any physician, advanced practice provider, registered nurse, social worker, or chaplain member of the care team was empowered to conduct or suggest a GOC conversation, concordant with their scope of practice. Because patients requiring ICU-level care may

FIGURE 2

Systemwide Goals-of-Care Metrics Dashboard

This dashboard provides all Providence employees with access to the goals-of-care documentation rates across three adult populations at each hospital within a region: patients who died in the hospital, patients with an ICU length of stay of 5 or more days, and hospitalized patients with chronic serious illnesses. In this figure, data for Q1 2020 through Q3 2024 are presented for seven regions, with aggregated results for all hospitals within each region.



Q1 = quarter 1, Q4 = quarter 4.

Source: The authors

lack the capacity to engage in a GOC discussion and may not have an identifiable surrogate decision-maker, thresholds were set below 100%, but were incrementally raised each year of the initiative. The baseline threshold was set at 31% in 2019 and was 65% in 2024.

3. Meaningful metrics and easy-to-understand dashboards were collaboratively developed by clinicians and information technology experts. The IHC team created a suite of interactive dashboards that scale up or down, from the enterprise level to a single hospital, unit, or individual provider practice. These dashboards display current year-to-date performance and are viewable systemwide (Figure 2).

4. Institute educators used feedback from ACT participants to streamline ACT sessions and broaden ways of accessing skill-building activities, including the development of online training modules. Until 2020, the ACT course was held in person. In 2020, due to constraints imposed by the Covid-19 pandemic, we shifted from in-person sessions to online, asynchronous modules that take approximately 90 minutes to complete; this is followed by participants role-playing conversations either in person or on a virtual platform. Since 2015, we have trained more than 5,000 clinicians across the entire system. No financial incentives were

provided to clinicians, but executive leadership at each hospital had a portion of their at-risk compensation tied to performance on all system-quality metrics, including the GOC metric.

5. Iterative improvements in the EHR–clinician interface made it progressively easier to document and retrieve GOC conversation notes. Critical comments and resistance were acknowledged and drove enhancements to EHR functionality. For instance, the initial stand-alone GOC note type was valuable; however, many clinicians complained about having to doubly document GOC conversations in the stand-alone note as well as their consultations or daily progress notes. In response, we developed and, in 2020, rolled out an EHR feature that allowed pertinent content from multiple note types (admission, consultations, and progress) to flow to a discrete entry in the GOC summary tab of the patient's chart.

Challenges and Responses

The time required to document GOC conversations was the most frequent complaint, followed by the time that ACT skill-building sessions entailed. In response we worked with clinical colleagues to continually improve clinical workflows and EHR tools, and to streamline trainings.

We observed variance in clinically relevant and meaningful GOC notes between individual clinicians and hospitals. Based on manual chart audits, a few hospitals had significant proportions of notes that did not document an actual conversation, or notes that contained information that was irrelevant to a patient's GOC (e.g., indicating that the patient is sleeping and that a more detailed conversation will follow).

In response, during the spring of 2020, we invited systemwide clinical leaders in medicine and nursing to participate in a time-limited committee to develop minimum criteria for accepting GOC conversation documentation that would qualify to be counted toward established quality targets. The time-limited committee decided that, to be clinically useful, a GOC note must:

- Specify who participated in the conversation;
- Denote the current general level of medical treatments desired; and
- Have at least a brief description of what was discussed.

In January 2021, these new criteria were approved by Providence's executive clinical leadership, and the format has been embedded into the EHR to enable clinicians to document the GOC conversations within their standard notes. The goals and plan of the medical care section provide four preset descriptions in a drop-down menu of choices to facilitate the process:

- Primary goal of prolonging life by all medically effective means.
- Primary goal is attaining patient's acceptable quality of life by a trial of all medically effective means.

- Primary goal is attaining patient's acceptable quality of life by selective medical treatments, balanced with avoiding burdensome treatments.
- Primary goal of maximizing comfort and allowing a natural death.

The IHC built corresponding data filters that excluded notes that did not meet minimal criteria. We sent explanatory letters to clinical leaders at all levels of the organization that described the rationale for the new criteria and introduced the corresponding revised dashboards. We provided each clinical leader with brief information about the minimum specifications criteria and frequently asked questions sheets in formats that could be shared when educating their teams. These changes were reviewed during routine GOC initiative updates at executive, regional, and local leadership meetings.

These efforts contributed to rapid and progressive improvement in the share of GOC notes meeting the minimum specifications, from just 42.8% of 27,636 notes in 2020, to 58.2% of 43,439 notes in 2021, 77.4% of 59,425 notes in 2022, 97.3% of 79,097 notes in 2023, and 97.3% of 102,066 notes in 2024 (Figure 1).

> *"Any physician, advanced practice provider, registered nurse, social worker, or chaplain member of the care team was empowered to conduct or suggest a goals-of-care conversation, concordant with their scope of practice."*

Phase 3. Maintain and Improve

Current Emphases and Opportunities

We are continuing to collaborate with leaders of hospital medicine, critical care, and other clinical service lines to set achievable quality of GOC conversation targets, build corresponding dashboards, and educate individual clinicians and clinical teams. We also continue to work with Providence informatics colleagues to enhance EHR tools that support best practices in shared decision-making.

Discussion

With the encouragement and support of the IHC, the Providence health system established goal-aligned care as an organizational strategic priority. In support of this priority, the IHC developed a multifaceted and multipronged GOC initiative, offering clinical communication skill-building programs, meaningful quality metrics, interactive and scalable dashboards to monitor performance, enhanced clinical workflows, and EHR tools to facilitate documenting and retrieving GOC conversations.

Table 1. Percentage of Code Status Changes in Hospitalized Patients with Chronic Serious Illnesses in Relation to Documentation of Goals-of-Care Conversation

Consultation Completion	GOC Conversation Not Documented	GOC Conversation Documented
Palliative care consultation — not completed	18% (278,957/1,540,047)	31% (42,632/136,605)
Palliative care consultation — completed	41% (29,142/71,027)	59% (54,285/91,369)

The percentage change in code status during a hospital admission for those patients who had at least one illness within the Dartmouth Atlas of Health Care[15] categories of chronic serious illness is segmented by whether a patient's electronic health record lacked goals-of-care (GOC) documentation; had GOC documentation; had a palliative care consultation; or had a GOC conversation documented and palliative care consultation. For each segment, the calculated percentage is shown as well as the numerator (number of hospitalized patients with a code status change during a hospital admission) and the denominator (number of hospitalized patients with chronic serious illness recorded in their chart during their admission for the analysis period of 2015–2024). Source: The authors

The increase in the proportion of GOC notes in the EHRs of seriously ill patients who meet minimum criteria is an indirect measure of quality. Direct observations or recordings of conversations would be necessary to know whether, and to what extent, a patient's personal values, preferences, and priorities were discussed and informed shared decision-making. Without recordings of these conversations, we are unable to assess their quality — whether they were thorough and values-driven or merely transactional. Indeed, some high-quality GOC conversations may occur and not even be documented within a patient's EHR. Advances in generative artificial intelligence may make it possible to identify and transcribe conversation content pertinent to shared decision-making and a patient's GOC.

Indirect evidence for a meaningful change in clinical practice is provided by positive associations between documented GOC conversations for seriously ill hospitalized patients and changes in cardiopulmonary resuscitation status during hospitalization (Table 1).

Specifically, code status changes occurred more frequently in patients who had GOC conversations documented in their EHR. These associations occur whether the GOC conversations are conducted by palliative care or nonpalliative care clinicians.

A few additional limitations warrant mention. First, our definition of the minimum specifications for GOC documentation represents a relatively low bar, notably omitting a detailed exploration of patient values. Our educational efforts emphasized the critical importance of values exploration. However, from a documentation standpoint, we prioritized reducing the burden on practicing clinicians, favoring a minimum standard that did not require this level of detail. Here, future application of generative artificial intelligence may offer additional insights by assessing what proportion of conversations contain key elements of a more comprehensive discussion.

Despite the progress demonstrated by this initiative, significant work remains. Our findings reflect success in a process measure — documenting GOC conversations — but do not yet demonstrate improvements in patient- and family-centered outcomes. Further research is required to determine whether these conversations ultimately lead to goal-concordant care or other meaningful impacts, such as alignment with patient preferences (e.g., place of death), the proportion of days spent at home in the last 6 months of life, or bereaved caregivers' perceptions of care quality. These measures would provide a more nuanced understanding of whether GOC conversations translate into care that better reflects patient values, rather than focusing solely on whether a GOC conversation was documented or influenced inpatient code status.

In addition, a single GOC conversation is often insufficient. Ideally, these discussions evolve over time as clinical situations change. Our analysis did not assess whether or how GOC conversations were revisited longitudinally to ensure ongoing alignment with patient preferences.

Lastly, we also deliberately selected a population for whom the need for a GOC conversation would be difficult to dispute. The Covid-19 pandemic further underscored the acute importance of these discussions. However, we recognize the value of initiating GOC conversations further upstream — such as at hospital admission or in outpatient settings with a trusted clinician. Our focused approach helped secure leadership buy-in, which was critical to our success. Encouraged by these results, we are now collaborating with hospital medicine leadership to identify additional patient populations for expansion, as well as engaging outpatient cardiology and oncology groups to explore broader implementation.

Our experience within one multistate health system suggests that efforts to educate, monitor, and support documentation of GOC conversations can increase the proportion of seriously ill patients who have their values, preferences, and priorities incorporated into their health record.

Matthew J. Gonzales, MD, FAAHPM
Associate Vice President, Chief Medical and Operations Officer, Institute for Human Caring, Providence, Renton, Washington, USA

Nusha Safabakhsh, MS, MBA
Executive Director of Measurement and Analytics, Institute for Human Caring, Providence, Renton, Washington, USA

Suzanne Engelder, LCSW
Executive Director, Program Development, Institute for Human Caring, Providence, Renton, Washington, USA

Deborah Unger, MD, FAAHPM
Director of Medical Informatics, Institute for Human Caring, Providence, Renton, Washington, USA

Ira Byock, MD, FAAHPM
Emeritus Professor of Medicine and of Community and Family Medicine, Geisel School of Medicine at Dartmouth, Hanover, New Hampshire, USA

Founder, Institute for Human Caring, Providence, Renton, Washington, USA

Dr. Gonzales can be contacted at matthew.gonzales@providence.org.

Acknowledgments

We thank Yvonne Corbeil for leadership in creating our Advanced Communication Training course. We also thank all those who have worked at the Institute for Human Caring since its founding in 2014. Their dedication made this work possible.

Disclosures: Matthew Gonzales, Nusha Safabakhsh, Suzanne Engelder, Deborah Unger, and Ira Byock have nothing to disclose.

References

1. Wright AA, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. JAMA 2008;300:1665-1673. https://pmc.ncbi.nlm.nih.gov/articles/PMC2853806/. https://doi.org/10.1001/jama.300.14.1665

2. Bernacki RE, Block SD. American College of Physicians high value care task force communication about serious illness care goals: a review and synthesis of best practices. JAMA Intern Med 2014;174:1994-2003. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/1916912. https://doi.org/10.1001/jamainternmed.2014.5271

3. Committee on Approaching Death: Addressing Key End of Life Issues. Dying in America: improving quality and honoring individual preferences near the end of life. Washington, DC: National Academies Press, 2015.

4. Yadav KN, Gabler NB, Cooney E, et al. Approximately one in three us adults completes any type of advance directive for end-of-life care. Health Aff (Millwood) 2017;36:1244-1251. https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.0175. https://doi.org/10.1377/hlthaff.2017.0175

5. Paladino J, Sanders J, Kilpatrick LB, et al. Serious illness care programme — contextual factors and implementation strategies: a qualitative study. BMJ Support Palliat Care February 15, 2022 [Online ahead of print] https://bmcpalliatcare.biomedcentral.com/articles/10.1186/s12904-023-01229-x. https://doi.org/10.1136/bmjspcare-2021-003401

6. Casarett D, Lakis K, Ma JE, et al. Goal-concordant care: end-of-life planning conversations for all seriously ill patients. NEJM Catal Innov Care Deliv 2022;3(12). http://catalyst.nejm.org/doi/10.1056/CAT.22.0271. https://doi.org/10.1056/CAT.22.0271

7. Chi S, Kim S, Reuter M, et al. Advanced care planning for hospitalized patients following clinician notification of patient mortality by a machine learning algorithm. JAMA Netw Open 2023;6:e238795. https://pmc.ncbi.nlm.nih.gov/articles/PMC10114011/. https://doi.org/10.1001/jamanetworkopen.2023.8795

8. Schell JO, Schenker Y, Piscitello G, et al. Implementing a serious illness risk prediction model: impact on goals of care documentation. J Pain Symptom Manage 2023;66:603-610.e3. https://pmc.ncbi.nlm.nih.gov/articles/PMC10828667/. https://doi.org/10.1016/j.jpainsymman.2023.07.015

9. Kumar P, Paladino J, Gabriel PE, et al. The serious illness care program: implementing a key element of high-quality oncology care. NEJM Catal Innov Care Deliv 2023;4(2). https://catalyst.nejm.org/doi/abs/10.1056/CAT.22.0309. https://doi.org/10.1056/CAT.22.0309

10. Bernacki R, Hutchings M, Vick J, et al. Development of the serious illness care program: a randomised controlled trial of a palliative care communication intervention. BMJ Open 2015;5:e009032. https://pmc.ncbi.nlm.nih.gov/articles/PMC4606432/. https://doi.org/10.1136/bmjopen-2015-009032

11. Lakin JR, Koritsanszky LA, Cunningham R, et al. A systematic intervention to improve serious illness communication in primary care. Health Aff (Millwood) 2017;36:1258-1264. https://www.healthaffairs.org/doi/10.1377/hlthaff.2017.0219. https://doi.org/10.1377/hlthaff.2017.0219

12. Paladino J, Bernacki R, Neville BA, et al. Evaluating an intervention to improve communication between oncology clinicians and patients with life-limiting cancer: a cluster randomized clinical trial of

the serious illness care program. JAMA Oncol 2019;5:801-809. https://jamanetwork.com/journals/jamaoncology/fullarticle/2728562. https://doi.org/10.1001/jamaoncol.2019.0292

13. Angus DC, Deutschman CS, Hall JB, Wilson KC, Munro CL, Hill NS. Choosing Wisely® in critical care: maximizing value in the intensive care unit. Crit Care Med 2014;42:2437-2438. https://journals.lww.com/ccmjournal/citation/2014/11000/choosing_wisely__in_critical_care__maximizing.15.aspx. https://doi.org/10.1097/CCM.0000000000000696

14. Zimmerman JJ, Harmon LA, Smithburger PL, et al. Choosing Wisely for critical care: the next five. Crit Care Med 2021;49:472-481. https://journals.lww.com/ccmjournal/abstract/2021/03000/choosing_wisely_for_critical_care__the_next_five.8.aspx. https://doi.org/10.1097/CCM.0000000000004876

15. Trustees of Dartmouth College. List of ICD-9-CM codes by chronic disease category: nine chronic conditions used in the Dartmouth Atlas of Health Care 2008. March 3, 2008. Accessed Jun 17, 2024. https://data.dartmouthatlas.org/downloads/methods/Chronic_Disease_codes_2008.pdf.