Evaluation of a labeling system to indicate the presence of an advance directive in a hospital medical record

JAMES WALLACE1 AND NORMAN A. DESBIENS2

1University of North Carolina, School of Public Health, Chapel Hill, NC, 2University of Tennessee College of Medicine, Chattanooga Unit, Department of Internal Medicine, Chattanooga, TN, USA

Abstract

Objective. To investigate the accuracy of one hospital’s system to indicate whether an advance directive exists within a patient’s medical record.

Design. Medical record review while patients were hospitalized.

Setting. Internal medicine residency program within a tertiary care hospital.

Study participants. Patients admitted to four internal medicine services between 25 October 2000 and 6 December 2000.

Main outcome measures. Presence of an advance directive and a label in medical records were recorded, along with patient demographics, and sensitivity, specificity, and accuracy were calculated.

Results. Four of 125 medical records (3%) contained advance directives. Sensitivity of a label for an advance directive was 25% [95% confidence interval (CI) 1–81%], specificity was 62% (95% CI 53–71%), and accuracy was 61% (95% CI 52–69%).

Conclusions. Use of the hospital’s labeling system to indicate the presence of advance directives was found to be highly inaccurate. Failure to correctly follow or understand the intended labeling procedure was the most likely source of error. Hospitals should include plans to check the accuracy of protocols when they are adopted to ensure that they are performing as intended.

Keywords: advance directives, continuous quality improvement, hospital systems, medical records

Advance directives (ADs) are formal documents that promote patients’ autonomy by communicating their preferences for treatment if they become incompetent. The Patient Self-Determination Act (PSDA), passed in 1991, requires all Medicare and Medicaid affiliates to inform patients of their right to make their preferences known through an AD. Medicare and Medicaid affiliates are required to document ADs in medical records and to educate the medical staff and the community about them [1].

While some studies show that the PSDA led to an increase in the number of patients who possess ADs [2], others demonstrate that the effectiveness and implementation of the PSDA has been variable and disappointing [3,4]. One limitation is that ADs are not found in the medical record or that caregivers are unaware of their existence [2]. In suggesting improvements to ADs, researchers stressed creating more effective methods for communicating their presence [5,6].

Recent studies have examined the effects of implementing educational and notification forms to remind caregivers to use and document ADs. Some have found that computerized or written reminders placed in medical records increase the number of patients with ADs and increase physician–patient discussions about them [7,8]. However, for notification systems to be able to improve care, they must be accurate.

The present study examines a labeling method used at one hospital to direct attention to ADs in medical records. We hypothesized that some medical records would contain an AD document but would not have the label on the face sheet (false-negative labels), and some would not contain an AD but would have the label on their face sheet (false-positive labels).

Methods

The study hospital’s AD procedure states that when patients are admitted to the hospital they or their family are interviewed by admitting personnel, either in the emergency department or in the admitting office. The presence or absence of an AD is established in this interview. If a patient
has an AD and presents it to be placed in the medical record, the admitting staff places a light green, easily recognized, adhesive label on the first page (face sheet) of the medical record. The label clearly reads ‘ADVANCE DIRECTIVE’ and has three marks to indicate the presence of a ‘Living Will’, ‘Healthcare Proxy’, and/or ‘Durable Power of Attorney’. The procedure does not mention whether these marks must be checked to indicate the presence of an AD. The nursing staff is responsible for adding a label to the chart after the initial day of admission if the patient develops an AD. The nursing staff may remove a sticker if the patient no longer wants an AD.

The study hospital is a university-affiliated tertiary care facility that has 760 licensed beds, 442 of which are active. The Internal Medicine Residency Program is one of 10 residency programs in the hospital. It has four medicine service teams that alternate admission call days, admitting all unscheduled patients who enter through the Emergency Room and all residents’ clinic patients. The teams admit predominantly to the medical floors and intensive care units (ICUs), although their patients may be scattered throughout the hospital.

The research protocol was presented to and accepted by the hospital’s Institutional Review Board. An investigator (J.W.) examined the medical records of patients who were admitted between 25 October 2000 and 6 December 2000 to the four internal medicine teams’ services: for the first 2 weeks he reviewed the patient records of two teams, for a half week those of three teams, and for the remainder of the time, those of all four teams for a total of 188 admissions. Attempts were made to review the records for the presence of an AD and a label within 48 hours of the patient’s hospital admission, and again within 72 hours of discharge. Most records were reviewed as frequently as every day during the patient’s hospitalization. A total of 125 medical records (66%) were reviewed. Other records were unobtainable for review, mainly because the patient was away from the ward for testing purposes despite several attempts to review the record. These records could not be reviewed after discharge because labels are removed when charts are disassembled before being sent to the medical records department.

An AD was defined as a Living Will or a legal document specifying treatment preferences, a legal document designating a Healthcare Proxy, or a Durable Power of Attorney for Health Care. ‘Do Not Resuscitate’ orders and other orders that specified end-of-life care but that were not legal documents were not considered formal ADs. The presence of a label on the face sheet (actually a plastic divider) of the medical record was noted and demographic information was collected. The percentages of all medical records that had ADs and labels were calculated. Confidence intervals for accuracy, sensitivity, and specificity were determined [9].

**Results**

Characteristics of our patients are listed in Table 1. A considerable number of patients spent time in the ICU and had prolonged hospital stays. Only four of 125 (3%) medical records were found to contain formal ADs. Of these, only one had a label, giving a sensitivity of 25% [95% confidence interval (CI) 1–81%]. Of the 121 medical records without a formal AD, 46 did contain a label. Specificity of the label was 62% (95% CI 53–71%). Overall, the label was found to be only 61% (95% CI 52–69%) accurate.

**Table 1 Characteristics of study patients**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>125</td>
</tr>
<tr>
<td>Median patient age in years (interquartile range)</td>
<td>57 (43–72)</td>
</tr>
<tr>
<td>Number (%) female</td>
<td>56 (45)</td>
</tr>
<tr>
<td>Median length of stay in days (interquartile range)</td>
<td>7 (4–9)</td>
</tr>
<tr>
<td>Number (%) with a length of stay &gt;7 days</td>
<td>52 (42)</td>
</tr>
<tr>
<td>Number (%) who spent at least 1 day in an intensive care unit</td>
<td>37 (30)</td>
</tr>
</tbody>
</table>

**Discussion**

Only 3% of our patients had an AD in the medical record. This percentage is low compared with previously published reports. For example, the SUPPORT study reported that 12% of seriously ill hospitalized patients had ADs [3]. It is possible that the patients in our study had them but did not bring them to the hospital or allow a copy to be placed in their medical records. Our methods (like those of SUPPORT) would not detect whether a patient had an AD, but only whether patients submitted one to be included in their medical record. Although our patients were not as sick as those in the SUPPORT study, nearly 30% spent some time in the ICU [3]. The patient population that we investigated consists of a higher number of indigent patients than seen at most hospitals. Indigent patients may be less likely to have ADs, although Cugliari et al. reported that demographic factors are poor predictors of their completion [10].

Only one of the patients with an AD had a label, indicating that the sensitivity of the label for an AD at this hospital was low. However, although the precision of this estimate is poor, even the upper value of the 95% CI range (81%) is too low. After speaking with involved hospital personnel, we think that a label not being present in a medical record that did contain an AD may have occurred as a result of one being created or presented to the hospital and placed in the medical record after admission, followed by a failure to then place a label in the medical record.

The specificity of the label for an AD was also low. A large number of medical records had a label but no AD. A misunderstanding of correct procedure could have caused a label to be placed on the medical record if the patient or proxy admitted to having an AD, but did not present the formal document to the hospital. A discussion with nurses after the study indicates that they might have misunderstood and thought that an informal directive such as ‘Do Not Resuscitate’ was an AD. According to protocol, the label should only
have been placed on medical records that contained a Living Will, a Durable Power of Attorney for Healthcare, or a legal document stating a Healthcare Proxy.

This study has several limitations. Data indicating the exact time of placement of the labels was not collected. This information could have suggested a better explanation of the relationship between labeling accuracy and length of stay. We did not document whether the nurses or the admitting office placed the label in the medical record. This information could allow a focused examination to determine inadequacy or a misunderstanding of the labeling procedure. We did not track ‘Do Not Resuscitate’ orders, so we cannot study whether they were confused with ADs. Also, we were only able to review 66% of the medical records of these sick patients, although even if they had been obtainable, the performance of the label system would still have been unacceptable.

The use of highly visible labels to indicate the presence of a formal AD at the study hospital was found to be highly inaccurate. If health care systems create policies to improve patient care, they need to employ continuous quality improvement methods to make sure that these policies are accurately implemented. Berwick describes a method of quality assessment in which policy makers ‘plan–do–study–act’ to constantly improve care. He notes that the alternative can be worse: ‘to take blind, wholesale stabs at change in complex, nonlinear systems where consequences can be dire and hard to predict’ [11]. In our case, when our findings were reviewed with hospital administration, a decision was made to discontinue the labeling system completely. When patient care policies are implemented, they should contain plans to monitor their performance to make sure that they are performing as intended. Otherwise, the policy may be worse than no policy at all.

References


Accepted for publication 22 March 2004