Clinical paper

Code status and resuscitation options in the electronic health record ☆

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ABSTRACT

Aim: The advance discussion and documentation of code-status is important in preventing undesired cardiopulmonary resuscitation and related end of life interventions. Code-status documentation remains infrequent and paper-based, which limits its usefulness. This study evaluates a tool to document code-status in the electronic health records at a large teaching hospital, and analyzes the corresponding data.
Methods: Encounter data for patients admitted to the Medical Center were collected over a period of 12 months (01-APR-2012–31-MAR-2013) and the code-status attribute was tracked for individual patients. The code-status data were analyzed separately for adult and pediatric patient populations. We considered 131,399 encounters for 83,248 adult patients and 80,778 encounters for 55,656 pediatric patients in this study.
Results: 71% of the adult patients and 30% of the pediatric patients studied had a documented code-status. Age and severity of illness influenced the decision to document code-status. Demographics such as gender, race, ethnicity, and proximity of primary residence were also associated with the documentation of code-status.
Conclusion: Absence of a recorded code-status may result in unnecessary interventions. Code-status in paper charts may be difficult to access in cardiopulmonary arrest situations and may result in unnecessary and unwanted interventions and procedures. Documentation of code-status in electronic records creates a readily available reference for care providers.

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1. Introduction

Resuscitation management in hospitals is driven by the patient's code-status. Discussing the end of life (EoL) decisions prior to clinical deterioration is labor intensive and potentially stressful for both patients and providers; however, it can improve care and quality of life, lead to the end-of-life experience desired by the patient,[1,2] and decrease the cost of care.[3] A recent study showed that the patients who had prepared advance directives received care that was strongly associated with their preferences.[4] While patients may have advance directives for EoL care prepared prior to hospitalization, operationalizing these instructions requires translating them into a code-status. The establishment of code-status requires first a discussion between a provider and a patient or his designee, exploring the patient's preferences in the case of a cardiopulmonary arrest. The code-status document is subsequently created to describe and share the patients' desires for EoL care in and is important in preventing undesired resuscitation.[5] It provides a predictable environment for patients, families, and providers.[6] Rates of code-status documentation remain low even among terminally ill patients,[7] and racial disparities in the implementation of advanced EoL directives have been observed.[8]

A code-status is only useful if it can be easily located when needed. At Vanderbilt University Medical Center (VUMC), documentation of code-status was previously done on paper and remained elusive for decision-making purposes. Capturing code-status in the hospital electronic health record was anticipated to facilitate better distribution of information and improved decision making.

In 2012, VUMC introduced a tool for electronic documentation of code-status for patients admitted to the hospital. Providers place

012345678 ETESTWIZ, FEMALE 72YR (02/12/1989 – 72YOF) Action

CODE STATUS Form

Date __01/02/2012__ Time __14:18__

PREVIOUS CODE STATUS:

ESTABLISH CODE STATUS AS:

Link to quick reference guide
Link to policy

- ○ DO NOT RESUSCITATE (DNR): In the event of a pulseless cardiac arrest resuscitative measures, including endotracheal intubation, are not attempted

- ○ DO NOT RESUSCITATE (DNR) / DO NOT INTUBATE (DNI): In the event of impending respiratory failure, endotracheal intubation is not attempted. In the event a pulseless cardiac arrest resuscitative measures are not attempted

- ○ FULL CODE: In the event of a pulseless cardiac arrest resuscitative measures are initiated

1. REASONS FOR CODE STATUS ORDER (Check all that apply):

   - ☐ Patient's condition in …
   - ☐ Req… by …p
   - ☐ Designated Power of Attorney (POA) or surrogate consistent with patient wishes and best interests.
   - ☐ Advance Directive (specify): _____
   - ☐ Other (specify): _____

2. PATIENT'S DECISION MAKING CAPACITY: ○ Present ○ Absent ○ Variable

3. Discussion OF CODE STATUS WAS HAS OCCURRED WITH (check all that apply)

   - ☐ Patient
   - ☐ POA (Power of Attorney for Health Care Decisions)
   - ☐ Other (specify):_____

   Name if not patient: _____

4. DISCUSSION OF CODE STATUS WAS PERFORMED BY:

   - ☐ Primary Attending Physician
   - ☐ Consulting Physician (specify): _____
   - ☐ Fellow (specify): _____
   - ☐ Resident (specify): _____
   - ☐ Nurse Practitioner (specify): _____
   - ☐ Other (specify): _____

- ○ I am an attending physician
- ○ Attending MD to approve [_____]
  Note: Please contact the Help Desk if the attending to approve can not be found in the autocompleter.

Comments:
(Clear)
(insert time)
[_____]

[**Save As Final**]   [**Cancel and Exit**]

Fig. 1. Code status documentation form lists the five questions that are addressed when provider discusses code status options with a patient.

code-status orders in the Computerized Provider Order Entry system after documenting answers to five questions (Fig. 1). The tool provides links to a user-friendly reference guide and the hospital policy within the body of the documentation form. Completion of the code-status form populates the corresponding code-status field in the electronic health records, indicating the (un)desired interventions in the header of the patient's chart. Completion of the form is optional; if not completed, the code-status field in the electronic health record remains undocumented. Electronic storage enables automatic display of the code-status in handover tools, provider communication, or other documentation. At the time of readmission, a patient's code-status from the previous encounter automatically populates the field with the prior date and a reminder for verification. The patient may change or re-affirm the status at this time.

The new code-status field offered the opportunity to assess its documentation. Earlier code-status studies have focused on smaller subsets of patient populations,[8,9] often constrained to terminally ill patients.[2] This descriptive study considers the complete inpatient population for a 909-bed university teaching hospital over a period