

Does DNAR mean ‘Do Not Treat’: Exploring the Impact of a DNAR Order on Patient Care Decisions in an Irish Acute Hospital

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Abstract

Aims

A DNAR (Do-Not-Attempt-Resuscitation) order is a written document informing healthcare professionals (HCPs) that Cardio-Pulmonary Resuscitation (CPR) should not be attempted. However, in practice, it appears that the presence of a DNAR order may also affect treatment decisions other than CPR. The objective of this study is to ascertain the impact of DNAR orders on other patient treatment decisions.

Methods

A cross-sectional survey was conducted, using two case-based scenarios followed by 10 questions on treatment decisions. Two versions of the survey, each containing hypothetical clinical vignettes of deteriorating patients, were distributed to HCPs in an acute hospital. The only difference between the two versions was the presence or absence of a documented DNAR order in each scenario.

Results

Forty doctors and nurses participated in the study.

Respondents were less likely to recommend non-invasive/invasive treatment interventions if a DNAR order was documented, they were also less likely to recommend lumbar puncture, endoscopy, central line placement, blood cultures, transfer to ICU, intubation or CPR if a DNAR was documented. Significantly, (3/17) 18% of participants would intubate and (2/17) 12% would perform CPR despite a documented DNAR present.

Discussion

Limited knowledge among HCPs in interpreting DNAR orders presents a risk of denying patients life-prolonging treatments.

Introduction

The aim of a DNAR order is to promote patient autonomy, to prevent the futility of CPR in a patient whose underlying co-morbidities mean they would be unlikely to survive it or the sequelae that follow and to ensure dignity for the patient who is dying. A DNAR policy should ensure that the decision not to resuscitate should have no definitive implications on other treatment decisions and interventions.

However, it is well documented that the interpretation of a DNAR order varies considerably between doctors and often prevents the introduction of other therapeutic interventions that may be appropriate¹. In one study in the USA, patients who were admitted for management of acute heart failure but who also had a DNAR order documented were less likely to undergo assessment of their left ventricular function or even to receive non-pharmacological counselling for their symptoms². The DNAR order document itself is often misinterpreted as a surrogate marker for patients' goals of care by the attending HCPs.

In the Irish context, a recent study³, revealed a persistent misunderstanding among HCPs with regard to DNAR orders to such an extent that over one quarter of nurses and almost one-third of primary care physicians believe a DNAR can preclude patients from receiving basic medical care. Conversely, another study⁴ reported that despite a DNAR order being documented, 11% of respondents to a survey they had conducted would still do chest compressions if a patient had a cardiopulmonary arrest.

With the pending commencement of the Assisted Decision Making Act 2015 which makes provision for advance healthcare directives, patients appointing themselves not for CPR is likely to occur more frequently.

This study was conceived as part of a quality improvement project based on the clinical experience of the authors in the Irish acute hospital setting. We have noted over time that where a documented DNAR order is in place and where the patient is receiving input from the Palliative Care team, other treatment decisions appear to be influenced by these factors. The document itself is often misinterpreted as an implicit ceiling of care for all treatments.

This survey was prompted in particular by the authors' involvement in the care of a young man with an unresectable oesophageal malignancy. Due to his illness, this patient suffered recurrent aspiration pneumonias from which he recovered with antibiotics. The patient had daily reviews by the inpatient Palliative Care team and also had a documented DNAR. If a deterioration occurred out of regular working hours, an NCHD (non-consultant hospital doctor) was called by nursing staff to report vitals that warranted a medical review. They were also told that he was 'not-for-resus'. A septic screen, as per the hospital guidance, was not completed. In a number of instances, on review the following morning, the patient was on oxygen, poorly responsive and clearly septic.

The aim of this study was to determine the impact of a DNAR order on patient care decisions in the event of a clinical deterioration, in an acute hospital.

Methods

A cross-sectional survey was conducted. The anonymous paper-based survey tools were designed, with permission, in line with previous work by Beach and Morrison (2002)¹.

Two different versions of the survey were distributed. Each contained two hypothetical clinical vignettes of deteriorating patients followed by 10 questions to determine if the participant would perform certain diagnostic tests or interventions. The only difference between the two versions was the presence or absence of a signed DNAR order.

Case 1 described a seventy-two-year-old man who is a nursing home resident with a history of multiple myeloma and dementia. He was lethargic but rousable and we are told he either did or did not have a DNAR order in place. Questions that followed included whether to perform a CT scan, give a blood transfusion, complete a lumbar puncture if the patient deteriorated, transfer to ICU and whether to initiate CPR.

Case 1 depicted a forty-eight-year-old lady who was one year post mastectomy for breast cancer. Lymphadenopathy had been found on axillary node dissection, but she had been lost to follow up. She was now presented to the Emergency Department with what was diagnosed as a post-obstructive pneumonia and a DNAR either was or was not signed depending on the scenario. The questions that followed included; recommending intravenous antibiotics, performing a bone scan, performing a diagnostic thoracentesis for a pleural effusion, performing a colonoscopy to investigate gastrointestinal bleeding, transfer to ICU and whether to initiate CPR or not.

During the course of an afternoon, nurses and doctors on two medical wards and an orthopaedic ward of an acute hospital (model 4) were asked to complete the survey. Paper surveys were left at the central station on each ward in a designated area and collected later that day having been returned to a collection point on each ward.

Participants were asked to indicate whether they would initiate or withhold treatments on the basis of the information provided to them in the vignette.

Because a DNAR order should not overly influence a HCPs decision to perform non-CPR procedures, answers were analysed on the premise that there was no difference between responses, despite the absence or presence of a DNAR order.

Demographic data collected from the participants included gender, ward and discipline/position. No identifying data were requested as part of the survey. Data were entered and stored on a single password-protected computer file which was only accessible by the lead investigator of the study (CN). Further security measures were deemed not necessary as no patient or HCP identifying information was collected.

Paper survey data were transferred to Excel for collation and onto SPSS software for analysis. A P value <0.05 was considered statistically significant. The Mann-Whitney U test was used to compare nonparametric variables.

Advice was sought from the local research ethics committee for this staff survey. As no patient information was being accessed and there was no risk of harm to staff, ethical approval was deemed unnecessary for this survey.

Results

Forty HCPs (twenty doctors and twenty nurses) participated in the study. Of these, fourteen were male and twenty-six were female. Twenty seven were working in the medical department and thirteen in the surgical department.

In general, respondents who received the vignettes containing a DNAR order were less likely to recommend either non-invasive or more invasive treatment interventions.

In both scenarios, patients were significantly less likely to have intubation ($p < 0.024$ for Case 1, $p < 0.000015$ in Case 2) and CPR ($p = 0.10$ for Case 1, $p < 0.00$ for Case 2) if they had a DNAR order signed in their chart. The patient described in Case 2 was also significantly less likely to be transferred to ICU if a DNAR order was in place ($p < 0.007$).

The patient in Case 1 was less likely to undergo a lumbar puncture ($p = 0.516$), have an endoscopy ($p = 0.745$), have a central line placed ($p = 0.570$), be transferred to ICU ($p = 0.416$), have dialysis ($p = 0.498$), be intubated ($p = 0.165$) or even have blood cultures taken ($p = 0.766$) when a DNAR was in place as opposed to it being absent.

With regard to Case 2, when a DNAR order was documented in their chart, the patient in the vignette was less likely to have a diagnostic thoracocentesis ($p = 0.588$), have an IVC filter placed ($p = 0.978$), be transferred to ICU ($p = 0.032$) or be intubated ($p < 0.00$).

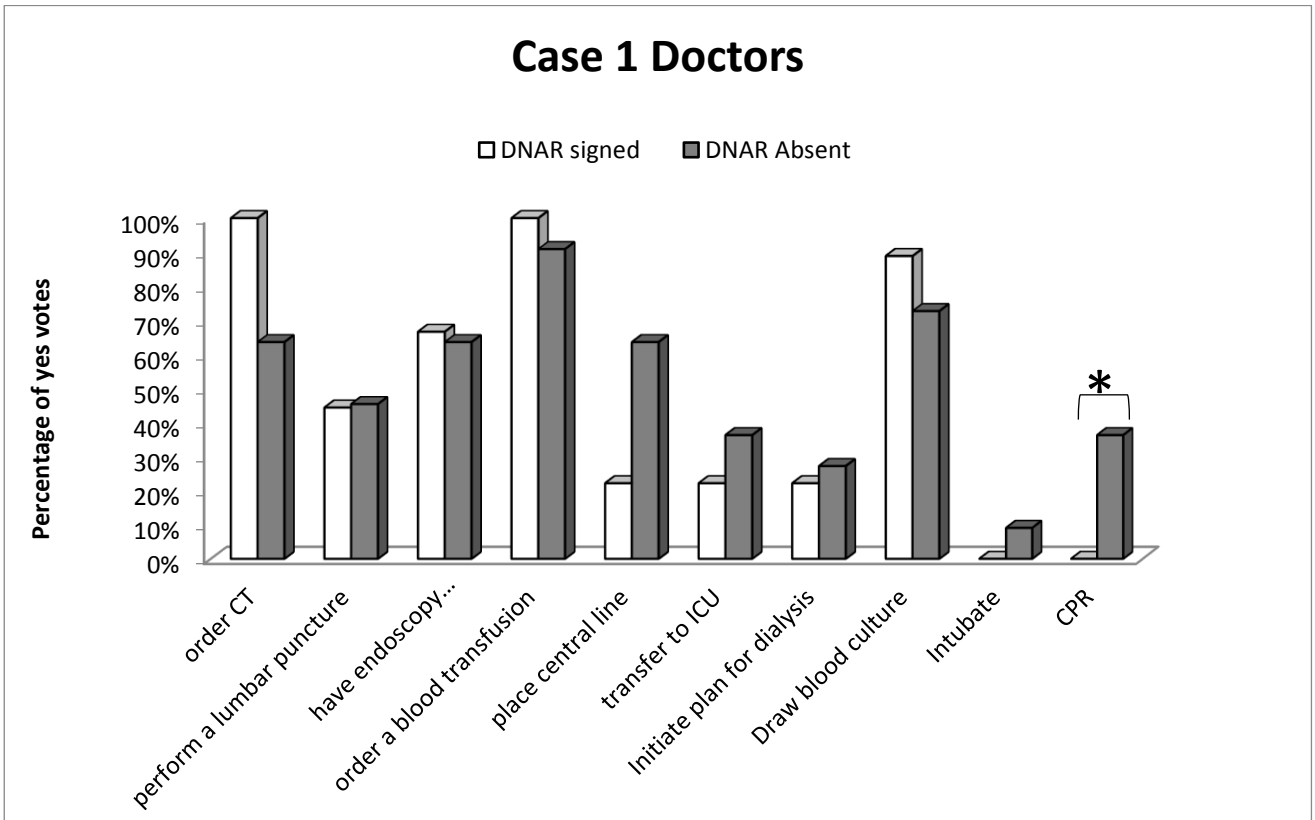
When comparing responses of doctors and nurses for Case 1 (Fig 1 & 2), both groups were less likely to initiate invasive treatments including dialysis ($p = 0.882$ for doctors, $p = 0.472$ for nurses), a lumbar puncture ($p = 0.750$ for doctors, $p = 0.571$ for nurses) or placing a central line ($p = 0.131$ for doctors, $p = 0.473$ for nurses) in the patient if a DNAR order was present. Conversely, both doctors and nurses were less likely to perform a CT brain when a DNAR order was present.

Notably, when the answers to Case 2 were compared (Fig 3 & 4), doctors were more likely to initiate non-invasive treatments including recommending admission ($p = 1.0$), ordering a bone scan ($p = 1.0$) or take blood cultures ($p = 1.0$) in the patient who had a DNAR signed and less likely to consider an IVC filter ($p = 0.882$), colonoscopy ($p = 0.710$) or placing a central line ($p = 0.656$). In the same clinical vignette however, nurses were more likely to perform or recommend admission ($p = 0.792$), order a bone scan ($p = 0.384$), take bloods cultures ($p = 0.571$) or recommend a colonoscopy ($p = 0.135$) in a patient who had a DNAR signed.

Significantly, in Case 2, 18% of respondents indicated they would intubate and 12% would perform CPR despite the presence of a DNAR documented.

Results from both cases 1 and 2 were inconsistent for some answers with some treatments being more likely to be initiated if a DNAR was present (ordering a CT and taking blood cultures in Case 1, having a colonoscopy, ordering a bone scan and taking blood cultures in Case 2).

Figure 1:



* Indicates statistical significance of $p < 0.05$.

Figure 2:

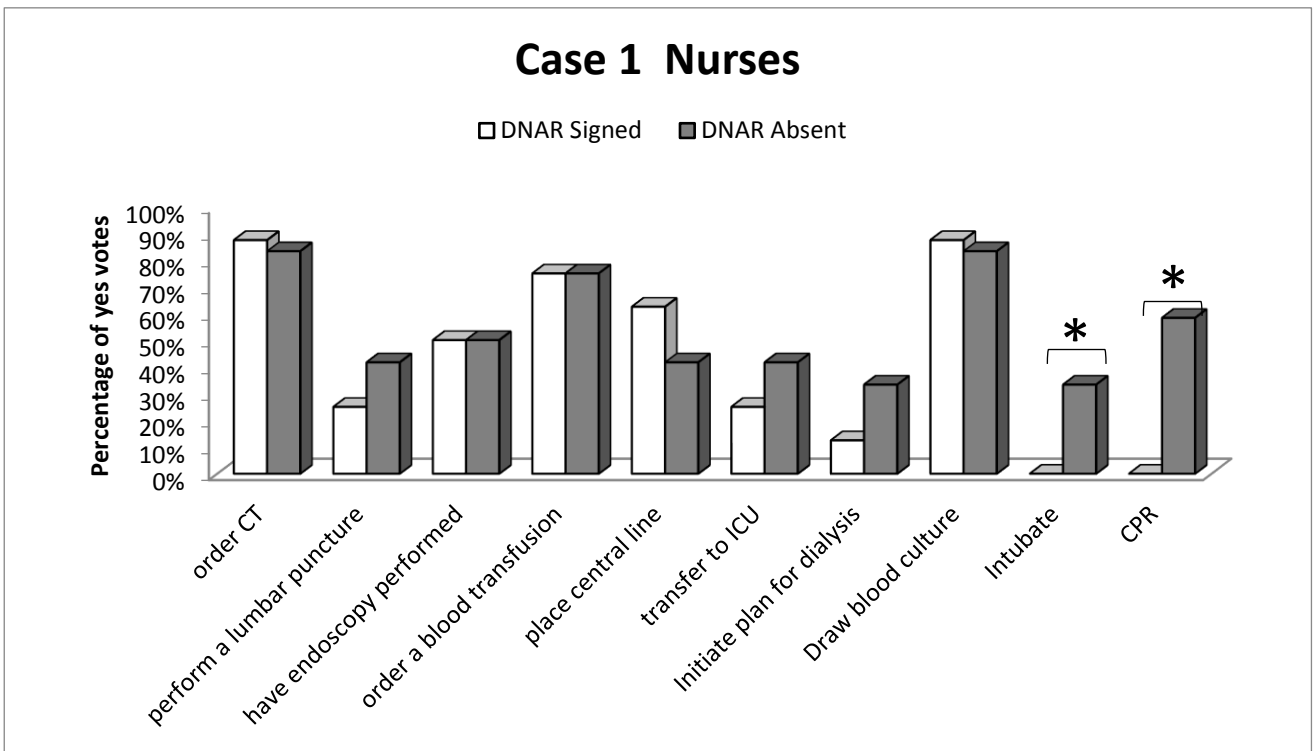


Figure 3:

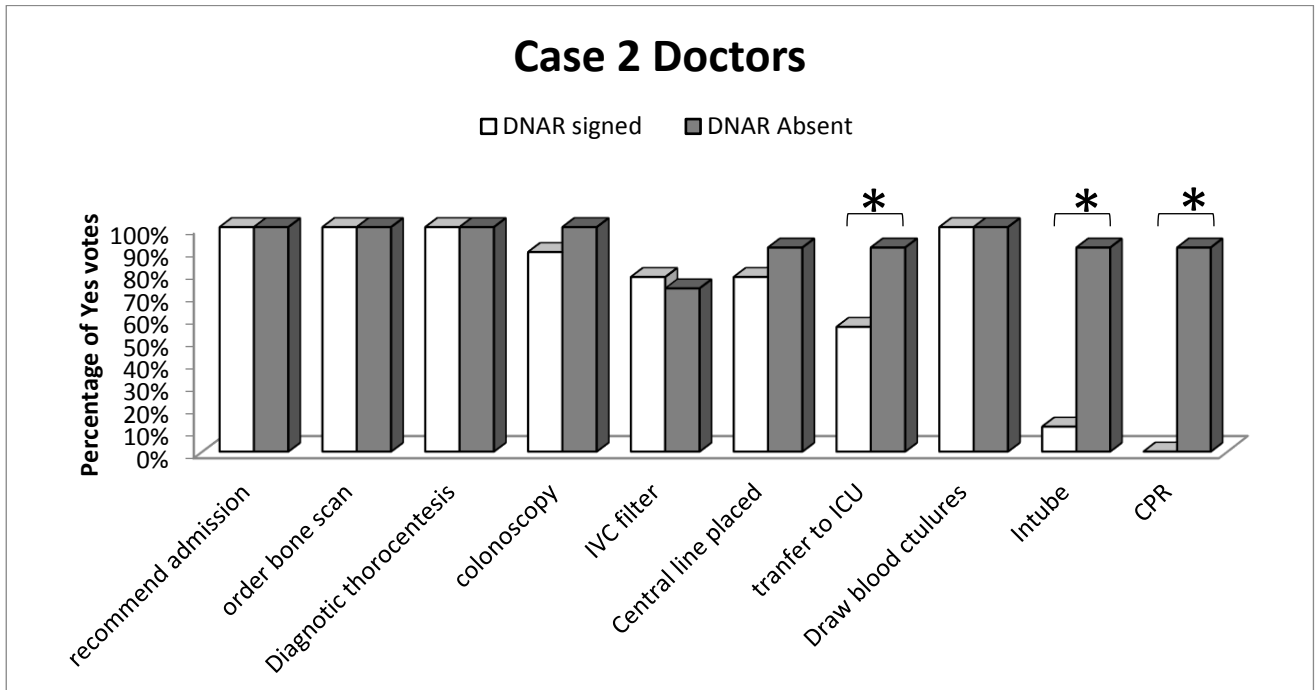
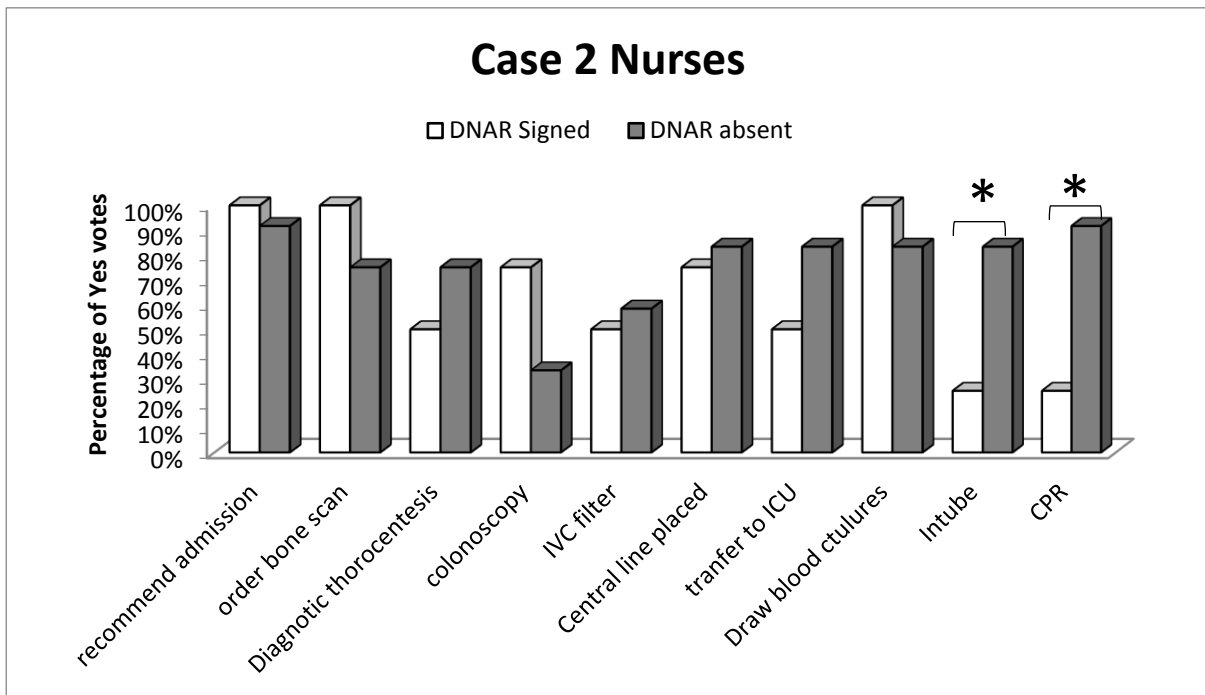


Figure 4:



Discussion

The interpretation of DNAR orders can vary widely between HCPs and this in turn can lead to differing opinions of the appropriate management for patients with a signed DNAR order in their chart.

The purpose of a documented DNAR appointed by the patient themselves promotes patient autonomy but what if something more sinister lies beneath? If an individual decides they have no wish to have chest compressions when their heart stops beating, does this in turn lead to a lower ceiling of care for all other medical interventions? Is the assumption that if a patient chooses to forgo one life saving intervention i.e. CPR, they would also wish to have other treatments withheld on the basis of this decision?

The results across this project suggest that, when presented with identical clinical vignettes of hypothetical patients, HCPs are more likely to withhold treatments other than CPR in the presence of a DNAR order. These treatments range from invasive interventions like central line insertion to relatively less invasive procedures including taking blood cultures. This potentially indicates that respondents took a documented DNAR order as a marker of expected irreversible clinical deterioration.

These findings resonate with those of previous studies, highlighting the misunderstanding and misinterpretation of DNAR orders among healthcare professionals^{3,4}. It indicates that patients with a DNAR order were less likely to undergo either invasive or non-invasive treatments. However, despite this trend, results from both cases were inconsistent with some treatments being more likely to be initiated if a DNAR was documented. This may indicate that either the questions were misunderstood, or participants felt that these decisions were not relevant to them.

In one of the clinical vignettes, 12% of HCPs would perform CPR despite being consciously aware of a documented DNAR. This may reflect respondents' opinions, highlighting the assumption that the patient described would potentially survive a cardiac arrest or suggest that respondents were influenced by the patients' age. Even if this is the case, the decision to ignore the DNAR order is significant. It is of particular import if the patient themselves has decided against CPR. This has major implications in terms of trust in the health system and requires further exploration.

Findings highlight the need for continued multidisciplinary education and ongoing policy change in Irish hospitals with regard to DNAR forms and scenarios where escalation of patient care is appropriate. The *ad hoc* nature of filling the form needs to be addressed in order to abolish the ambiguity surrounding the ceiling of care when a patient with a DNAR order deteriorates. Effective training strategies to aid HCPs in initiating conversations with patients surrounding their goals of care need to be established.

Hospital policies need to distinguish DNAR status from palliative care¹ in order to restrict the scope of DNAR orders as they are often associated with treatment decisions other than emergency CPR.

This survey had a number of limitations. It was a single-centre project with a small sample size. The clinical vignettes used were hypothetical, therefore this may not accurately reflect health care professionals' practice. However, this study looked at the isolated effect of a DNAR status on a patients' medical management by reducing the other potential variables that would be present with the presentation of an actual patient.

The sole purpose of a DNAR order is to document cardio-pulmonary resuscitation preferences. The findings of this study clearly illustrate how the presence of a DNAR document may also influence other important and appropriate treatment decisions. This is of significant concern.

The results suggest limited knowledge among HCPs as to the appropriate interpretation of DNAR orders and the initiation of appropriate life-prolonging treatments. Further work is now needed to determine the educational needs of HCPs in providing consistency in interpretation of DNAR orders and to explore the need for effective training strategies to aid clinicians in initiating conversations with patients surrounding their goals of care.

Declaration of Conflicts of Interest:

The authors declare that there is no conflict of interest.

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