

A Call to Move Beyond the Numbers in DNAR Orders Research

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Do not attempt resuscitation orders (DNAR) have been the topic of many studies in many fields, for many years. As Burns et al stated in their 25-year review of DNR orders, “few initials in medicine today evoke as much symbolism or controversy as the DNR order.”¹ It is a complicated procedural entity that is often counted as binary (yes or no); however, its execution is heavily influenced by persuasive sociocultural constructs such as sex, age, culture, religion, and relationships—not only of the patient, but also of the substitute decision maker(s) and healthcare providers involved.

The publication of the first DNR orders in the literature in 1976 was a significant transition in the delivery of medical care; rather than ordering the start of a therapeutic intervention, this was the first order prohibiting a medical therapy.¹ Since then many papers have been published looking at various associations in order to determine whether there are trends in who has or should have a DNAR order and what the timing was or should be, although the majority are retrospective, quantitative analyses of registry/administrative data. In this issue of the *Journal of the American Heart Association (JAHA)*, Perman et al² use data from the Get With The Guidelines—Resuscitation Registry to look at the association between de novo DNAR (any time after return of spontaneous circulation [ROSC]), within 12 hours of ROSC, or within 72 hours of ROSC) by sex, and the association between sex and survival to discharge accounting for DNAR for in-hospital cardiac arrest. Their cohort included 30 454 (42.4%) women, who were slightly more likely to establish DNAR orders any time after ROSC (45.0% versus 43.5%; ARR [Absolute Risk Reduction] 1.15 [95% CI: 1.10–1.20]; $P < 0.0001$). Of those with

DNAR, women were more likely to be DNAR within the first 12 hours (51.8% versus 46.5%; ARR 1.40 [1.30–1.52]; $P < 0.0001$) and within 72 hours after ROSC (75.9% versus 70.9%; ARR 1.35 [1.26–1.45]; $P < 0.0001$). However, they did not find a difference in survival to hospital discharge between women and men (34.5% versus 36.7%; ARR 1.00, 95% CI 0.99–1.02, $P = 0.74$).² This is a very well-written paper using a robust national database, but after reading it I found myself still asking the “So what?” question. What knowledge do these statistics impart that helps us understand the impact of the execution of DNAR orders at a certain time, in certain people? Not unlike previous papers, we see that women are more likely to have a DNAR status initiated earlier than their male counterparts. However, the complexities of how and why the DNAR orders were implemented for those women at that time (earlier), the nature of the discussions and decision-making factors that were considered, etc are absent from this type of study, which leaves the reader still wanting for an explanation.

While the excellent work presented by Perman et al is important to begin to draw attention to a potential sex/gender association (or in this case a lack of association regarding survival), it also draws attention to the need to look at more than just epidemiology and statistics when investigating what are complex, socially mediated questions in health care. We need to lean more heavily on a mixed methods approaches to put meat on the numerical bones and truly understand the reasons behind the choices and timing of initiation of DNAR status in all patients. Registry data research looking at variations in care can quantify differences between groups, but the issue becomes whether a difference equates to a problem. In the case of sex differences such as those described by Perman et al, there may be very good explanations for why the women in this cohort were put on DNAR status when they were, but we do not have a way to know that from the registry. And if we decide that such a sex difference (or any other inequality for that matter) is indeed problematic, how can we begin to understand the root of the problem or what interventions or changes should be made in order to reverse the problem without understanding the answers to the why and how questions?

Quantitative research methods are a powerful tool for measuring and analyzing large amounts of data and for understanding relationships between dependent and

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independent variables. However, such methods tend to reduce experience to well-defined, clean variables selectively chosen for investigation.³ Conversely, qualitative research is concerned with developing explanations of social phenomena. It is concerned with the social aspects of our world and seeks to answer questions about why people behave the way they do, how opinions and attitudes are formed, how people are affected by the events that happen to them and around them, and the differences between social groups. In no way am I trying to reignite the paradigm wars of the 1980s between quantitative and qualitative purists, but rather bring attention to the benefits of using both methods more often to create synergistic evidence, particularly in the area of variation in care delivery. As Margarete Sandelowski, a highly respected qualitative scholar put it: “Qualitative health research offers the best chance of producing truly transformative knowledge and fully activating the knowledge transformation cycle foundational to the evidence-based practice paradigm.”⁴ More recently, the rise of mixed methods⁵ as a recognized methodology in of itself provides formal acknowledgment of the benefits of integrating the strengths of both quantitative and qualitative methods to produce the most robust and applicable evidence possible.

Medicine is often said to be both a science and art and in the case of the initiations of DNAR discussions at the time of a cardiac arrest, but it is likely more the latter. In many cases the comparison of treatment delivery between sexes, cultural groups, or age cohorts is not as socially complicated. However, in the case of DNAR orders, we cannot turn a blind eye to the psychological, social, cultural, environmental,

religious, and situational influences on such a decision. Observational and epidemiologic studies are very important to provide scientific evidence of differences in delivery and effectiveness of potential treatments and solutions, but they cannot explain healthcare decision making. Only when we harness the power of mixed methods more fully, will we have a more fulsome scientific foundation that can explain problems, inform targeted improvements, and in the case of DNAR orders help strengthen end-of-life decision making.

Disclosures

Dr. Dainty is an endowed Research Chair in Patient-Centred Outcomes at North York General Hospital in Toronto, Canada.

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