



Editorial

Medical News Headlines: Don't Believe Everything You Read

When so much distraction bombards our senses every waking hour, it's not surprising that visual and auditory images often border on the extreme or outrageous to be eye-catching or that headlines, in their competition for our diminishing attention to print media, often resemble those formerly reserved for the tabloid press. When everyday news is presented in this sensationalist manner by television networks that launch every broadcast with "breaking news" that is often neither, news anchors heavily emoting on potholes, traffic reporters describing normal tie-ups as if these were mass evacuations, and meteorologists breathlessly forecasting warnings about carrying an umbrella, we grow accustomed to it. When health care news is conveyed in a comparable manner, however, it can represent a jarring and confusing departure from our more accustomed tone of professional narrative and diminish trust in its source.

Two health care headlines snagged my attention recently after they were repeated in various locations over the course of a few months. The gist of these headlines was as follows:

- Patient survival is better when cardiopulmonary resuscitation (CPR) is performed by bystanders rather than (emergency medical services) EMS personnel.
- Medical errors are the third-leading cause of death in the United States.

Neither of these announcements seemed plausible. The first seemed to suggest that

untrained laypersons who encounter someone in cardiac arrest somehow perform CPR more effectively than highly trained health care providers. The second headline suggested some form of physician-led national pandemic of medical misadventure that was precipitating widespread patient demise. Both demanded follow-up to determine their validity and supporting evidence.

Patient Survival Is Better When CPR Is Performed by Bystanders Compared to EMS

I first noticed this banner at Medscape, where a summary¹ explained it was based on 2 studies that appeared in a July 2015 issue of the *Journal of the American Medical Association*. In the first report, researchers in North Carolina examined 4961 patients in the Cardiac Arrest Registry to Enhance Survival who had experienced out-of-hospital cardiac arrest (OHCA) and for whom resuscitation had been attempted by bystanders or first responders (firefighters, police, others trained in basic life support) before arrival of EMS personnel.² Before the study (2010-2013), statewide instruction was provided to improve bystander and first responder contributions to team-based CPR, apply high-performance CPR, and use automated external defibrillators (AEDs). Findings demonstrated that the greatest OHCA survival (to discharge) rate (33.6%) was achieved when CPR and defibrillation were both provided by bystanders; the lowest survival rate (15.2%) was associated with EMS-initiated CPR and defibrillation. In addition, improved survival with favorable neurological

©2016 American Association of Critical-Care Nurses doi:
<http://dx.doi.org/10.4037/ccn2016320>

outcomes was only achieved when CPR was bystander-provided. When CPR and defibrillation were provided by first responders, 25.2% survival was achieved; bystander CPR with first-responder defibrillation was associated with 24.2% survival.

A second study in Japan produced similar outcomes by examining data generated over 8 years (2005-2012) with a much larger sample (nearly 168 000) from the national registry who experienced bystander-witnessed OHCA.³ Findings revealed that bystander chest compressions was associated with a doubling of the neurologically intact survival rate (8.4%) compared to victims not receiving bystander CPR (4.1%). Bystander-only defibrillation was associated with higher neurologically intact survival of 40.7% compared to 15% when defibrillation was EMS only.

What is evident from both studies is the beneficial influence that bystander CPR and defibrillation have on both survival and neurologically intact survival following OHCA. What is *not* evident to anyone who just reads the first headline is the following:

- The survival rate (to hospital discharge) from OHCA remains dismal in most locations in the world, including the United States where it averages 10.6%,⁴ so doubling or tripling that rate is noteworthy.
- When OHCA includes bystander-witnessed ventricular fibrillation, survival increases to 38.6% for patients of any age, while it improves to only 12% for EMS-treated OHCA with any first recorded rhythm.⁴
- In the North Carolina study, “bystanders” were not just anyone but people who witnessed the arrest and had received instruction on cardiac arrest recognition, CPR, and AED use.
- The crucial variable for patient survival from OHCA is not (as the headline would suggest) the provider (bystander vs EMS), but time: bystanders initiate CPR and defibrillation immediately following OHCA rather than after the time delay necessary for EMS to arrive at the scene.
- The magnitude of that time delay also seems to explain the 3-tiered survival improvement:
 - Highest associated with bystanders’ immediate responses
 - Intermediate with first-responders who arrive later
 - Least with EMS who arrive latest, when cardiac output compromised longest, resulting in anoxia and end-organ damage that may render ventricular

tachycardia or fibrillation into a pulseless dysrhythmia no longer amenable to defibrillation.

- Further evidence of the primacy of time in OHCA survival is illustrated in Seattle, Washington, which boasts a 62% survival rate from witnessed cardiac arrests, described as the highest in the world.⁵ Factors contributing to that achievement include 69% of OHCA victims receiving bystander CPR, large numbers of the population trained in CPR, extensive network of AEDs, and rapid response times that average 7.5 minutes (4.32 urban areas, 5.54 suburban, 7.0 rural, 10.4 wilderness).⁵

Medical Errors Are Now the Third-Leading Cause of Death in the United States

In May 2016, a paper announcing “Medical error—the third leading cause of death in the US” was published in *The BMJ*.⁶ When I investigated the evidence for this provocatively titled paper, I found not a research report, but more an essay advocating revision of death certificates to include factors associated with medical errors, a brief literature review asserting that the Institute of Medicine’s (IOM’s)⁷ projection of 98 000 annual deaths from medical errors was an outdated underestimate not based on primary research, citation of even older and some newer projections ranging from 140 400 to more than 400 000, a single sentence describing their own extrapolated calculation from pooled preexisting data (251 454 annually), and suggested approaches to the problem.⁶ The analysis defined medical error as any unintended individual or system level act that may or may not cause harm. The authors’ procedure examined 4 studies reported between 2000 and 2008, then extrapolated to the total number of US hospital admissions in 2013. There was no description of the logic or statistical basis for this projection.

As one might expect, an analysis quadrupling the admittedly dated yet alarming IOM estimate precipitated a number of responses from health care professionals, some of whom supported the conclusion, while many others disagreed with the procedures, estimate, and conclusion.

What is evident from the headline is that errors in any aspect of health care services remain a concerning and compelling problem within the field and that better means of measuring these could assist in their prevention. What is *not* evident to anyone who just reads the

headline can be identified from some of the recurring themes in responses to this paper:

- Reader comments at *The BMJ* website⁸ expressed a range of concerns: the paper used inconsistent definitions of events in operationalizing the errors to count, classified all adverse events as preventable without any evidence to do so, calculated only in-hospital events while the conclusion extended across all of health care. Some called for retraction (comparable to returning toothpaste to its tube this late after dissemination).
- A National Public Radio interview related that the Centers for Disease Control's chief of mortality statistics disputed that coding is the problem, saying that complications from medical care are listed and can be coded, and a physician who participated in the IOM report said existing estimates lack the precision necessary for listing errors as the third-leading cause of death.⁹
- At the Medscape website, physicians acknowledged the problem and need to minimize medical errors, but took issue with the authors' sweeping definition of medical error, especially its neglect to distinguish among actual errors, complications, unavoidable complications, and disappointing results; noted that "medical" denotes physicians when many other providers and workers affect patient care; indicted the methods used for analysis, as well as the use of hyperbole, fear-mongering, and sensationalism to address an important issue.¹⁰

Other Concerns Related to Sensationalism in Medical Headlines

Among the reader responses to this paper, one surgeon accused the authors of "fishing for funding" with such hyperbole.¹⁰ So how would that work? Create a few scary health care statistics, write some attention-grabbing conclusions that strike fear in the population, get your name, fame, and tons of free international media coverage all over the Internet and news outlets, reinforce the need for elected officials to "do something about it," and await priority research funding as the public voice for resolving the problem. Cynical? Maybe or maybe not.

One of the items I ran across in researching this paper was a *Washington Post* interview with the authors, who related that they conducted the analysis "to shed more light on a problem that many hospitals and health-care

facilities try to avoid talking about."¹¹ Although that intention sounds noble, it contrasted markedly with the origin identified with the actual article, relating that the paper "arose from discussions about the paucity of funding available to support quality and safety research relative to other causes of death."^{6(pp2)} The latter certainly sounds like an admission that the surgeon's suspicion regarding "fishing for funding" was not misplaced.

The potentially biasing influence of financial gain can be delivered through various means and locations. Just like medical error, financial gain may exist at individual or system levels. Research funding may be directed to one's institution, department, and a research program, whereas financial gains such as royalties from book sales may benefit an individual directly. For example, in the course of examining materials related to this paper, I noted 2 instances where different books related to the topic and written by the first author are mentioned or advertised.^{6,12}

Despite the legitimacy of the underlying issue of medical errors and whatever staggering prevalence is true, I do not think there is any place for even the appearance of authors having financial gain related to a position they take on health care issues nor any place for blatantly advertising tell-all products related to their claims. I find this type of journalism troubling as it not only reflects poorly on our ethics and professionalism, but distracts from the more important need to inspire studies that confirm or refute such findings based on sound science, not on inflating one's research budget or book royalties.

Closing

As both contributors to and consumers of news related to the health care industry, these examples illustrate why critical care nurses need to always read beyond the headlines to examine the quality and breadth of evidence that exists for their support. A tentative, skeptical attitude is particularly warranted when headlines ascribe momentous benefit or ill to a single cause. Very little in life or health or death is fully attributable to a single cause, so a critical eye and a healthy dose of skepticism are useful tools for vetting such claims. **CCN**



JoAnn Grif Alspach, RN, MSN, EdD
Editor

References

1. Brauser D. Bystanders Achieve Better Survival After CPR, AED for Cardiac Arrest vs EMS in Two Reports. Medscape. July 29, 2015. <http://www.medscape.com/viewarticle/848788>. Accessed June 2, 2016.
2. Malta Hansen C, Kragholm K, Pearson DA. Association of bystander and first-responder intervention with survival after out-of-hospital cardiac arrest in North Carolina, 2010-2013. *JAMA*. 2015;314:255-264.
3. Nakahara S, Tomio J, Ichikawa M. Association of bystander interventions with neurologically intact survival among patients with bystander-witnessed out-of-hospital cardiac arrest in Japan. *JAMA*. 2015;314:247-254.
4. Mozaffarian D, Benjamin EJ, Go AS, et al on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2016 update: a report from the American Heart Association. *Circulation*. 2016;133:e29-e322.
5. Public Health-Seattle and King County. King County Has World's Highest Survival Rate for Cardiac Arrest. May 19, 2014. <http://www.kingcounty.gov/depts/health/news/2014/May/19-cardiac-survival.aspx>. Accessed June 2, 2016.
6. Makary MA, Daniel M. Medical error—the third leading cause of death in the US. *BMJ*. 2016;2139(May):1-5.
7. Kohn LT, Corrigan JM, Donaldson MS. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press; 1999.
8. The BMJ website. Medical error—the third leading cause of death in the US. Response and Rapid Response. <http://www.bmj.com/content/353/bmj.i2139/rr-49>. Accessed May 30, 2016.
9. Allen M, Pierce O. Medical Errors Are No. 3 Cause of US Deaths, Researchers Say. http://www.npr.org/sections/health-shots/2016/05/03/476636183/death-certificates-undercount-toll-of-medical-errors?utm_source=twitter.com&utm_medium=social&utm_campaign=morningedition&utm_term=nprnews&utm_content=20160504. Accessed May 30, 2016.
10. Stokowski LA. Who Believes That Medical Error Is the Third Leading Cause of Hospital Deaths? Medscape. May 26, 2016. <http://www.medscape.com/viewarticle/863788>. Accessed May 30, 2016.
11. Cha AE. Researchers: Medical errors now third leading cause of death in United States. *The Washington Post*. May 3, 2016. <https://www.washingtonpost.com/news/to-your-health/wp/2016/05/03/researchers-medical-errors-now-third-leading-cause-of-death-in-united-states>. Accessed May 30, 2016.
12. McMains V. Johns Hopkins study suggests medical errors are third-leading cause of death in U.S. <http://hub.jhu.edu/2016/05/03/medical-errors-third-leading-cause-of-death>. Accessed May 30, 2016.