Human Cognition and the Dynamics of Failure to Rescue: The Lewis Blackman Case

KIMBERLY ACQUAVIVA, PhD, MSW,* HELEN HASKELL, MA,† AND JEAN JOHNSON, PhD, RN, FAAN‡

Lewis Blackman was a 15-year-old boy who died 4 days after having surgery to correct a congenital deformity of the chest. The story of his death serves as a chilling reminder that quality and safety are not abstract ideals but rather tangible goals designed to prevent tragedies like the one experienced by Lewis Blackman's family. The authors sought to find an explanatory model for the events that transpired and posit that the answer lies at the intersection of several distinct yet interrelated phenomena: (a) the failure of dual process theory; (b) anchoring and belief perseverance; (c) the role of power and authority; and (d) the fragmented care delivery system in the hospital setting. To prevent similar tragedies in the future, the authors propose 5 strategies for nursing educators: incorporate "cognitive unmooring" questions into student assessments of patients; integrate information about System 1 and System 2 thinking into the didactic portion of the curriculum; include cases similar to Lewis Blackman's into simulation experiences; ensure that students learn how to recognize and address authority gradients with supervisors, physicians, and other members of the health care team; and provide students with experiences including the patient/family as members of the care team. (Index words: Medical error; Lewis Blackman; Failure to rescue; Human cognition; Nursing error; QSEN) J Prof Nurs 29:95–101, 2013.

> All decision making is an uncertain enterprise. Mistakes are inevitable even in the best of circumstances and especially when judged with the benefit of hindsight. But even in uncertain practice, some decisions are clearly better than others. Avoiding common mistakes would increase the proportions of decisions that are better, so learning about common sources of error ought to enable the recognition of errors and help develop strategies to minimize avoidable mistakes (Bate, Hutchinson, Underhill, & Maskrey, 2012).

In *Blink*, Malcolm Gladwell writes about the phenomenon of the seemingly instantaneous and subconscious gathering and interpretation of situational data that leads to rapid decision making in crisis situations. Without any conscious contemplation of data, a fireman may, in the blink of an eye, make a decision to flee the building just seconds before the floor of the building collapses. Gladwell posits that what some might call the fireman's "intuition" is in fact the result of a rapid, situational data-gathering and interpretation process undertaken subconsciously. Despite the fact that the fireman in this example did not consciously recognize any red flags indicative of an impending structural collapse, the fireman's subconscious mind did. Gladwell argues that rapid cognition is not intuition or instinct but rather rational thinking that occurs at an exceptionally fast pace (Gladwell, 2005).

If the decision making of the fireman in Gladwell's example represents rapid cognition, the decision making of the health care professionals responsible for Lewis Blackman's care represents a seeming absence of cognition. Lewis Blackman was a 15-year-old boy who died 4 days after having surgery to correct pectus excavatum, a congenital deformity of the chest (Monk, 2002). In the face of overwhelming evidence of a growing clinical crisis, the health care professionals charged with

*Associate Professor, George Washington University, School of Nursing, Washington, DC.
†President, Mothers Against Medical Error, Columbia, SC.
‡Dean and Professor, George Washington University, School of Nursing, Washington, DC.
Address correspondence to Dr. Acquaviva: PhD, MSW, Associate Professor, George Washington University, School of Nursing, 2030 M St NW, Suite 300, Washington, DC 20036. E-mail: acqua@gwu.edu
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caring for Lewis Blackman made a series of conscious decisions to disregard the red flags that heralded Lewis's impending death. The story of the death of Lewis Blackman as told by his mother Helen Haskell has been a powerful one that has been shared through a video at each of the Quality and Safety Education for Nurses (QSEN) regional institutes. It silenced audiences because of the sheer enormity of the situation, the disbelief that it could have occurred and served as a chilling example—one of thousands and perhaps hundreds of thousands—to QSEN participants that quality and safety are not abstract ideals but rather tangible goals designed to prevent tragedies like the one experienced by Helen and her family. The authors of this article were deeply troubled by what happened to Lewis Blackman and sought to find an explanatory model for the events that transpired, with the ultimate goal of developing recommendations for preventing tragedies like this in the future.

The tragedy in the Lewis Blackman case lies not in a sign or symptom that went undetected by health care professionals. On the contrary, the health care professionals in question recognized—and, in fact, documented that they recognized—the existence of signs and symptoms that most of the seasoned health care professionals would recognize as red flags. If we were to draw a parallel between this case and Gladwell's story of the fireman, it would be this: The doctors and nurses caring for Lewis Blackman stood in a burning building while multiple warnings of an imminent structural collapse were broadcast over a loudspeaker. Despite all of this, they chose to continue to stand in that building while the walls came tumbling down around Lewis Blackman.

So how did this happen? How is it that Gladwell's fireman could subconsciously gather situational data and use rapid cognition to make a life-saving decision in the blink of an eye, yet the physicians and nurses caring for Lewis Blackman consciously gathered situational data, documented those data and, over the course of 30 hours, repeatedly failed to demonstrate the use of cognition, rapid or otherwise? We posit that the answer lies at the intersection of several distinct yet interrelated phenomena: (a) the failure of dual process theory—namely, the inadequate integration and application of intuitive and analytical decision-making approaches at the bedside; (b) anchoring and belief perseverance; (c) the role of power and authority; and (d) the fragmented care delivery system in the hospital setting. Exploration of these factors should in no way be construed as excuses for Lewis's death but as a way to identify strategies to prevent future tragedies.

A Failure of Dual Process Theory: The Disconnect Between Intuitive and Analytical Reasoning at the Bedside

Cognitive science has recognized and studied two types of decision-making processes. The first is considered intuitive or heuristic (shortcut decision making) based on experience and occurs quickly and seemingly automatically. The second is referred to as a reasoning process that is slower, fact based, and rational (Croskerry and Norman, 2008; Stanovich and West, 2000; Kahneman, 2002). These two decision-making processes have been referred to as System 1 (intuitive) and System 2 (rational) (Stanovich and West, 2000).

System 1 dominates decision-making processes. There are thousands of decisions daily that rely on quick and automatic responses. Gladwell's "rapid cognition" falls into the System 1 category of decision-making approaches. Although System 1 decision-making processes are intuitive in nature, the intuition they require is borne not of instinct but rather of accumulated experience. Benner and Tanner's definition of intuition eloquently captures the essence of this distinction: "understanding without rationale" (1987).

Because System 1 decision making relies upon having a mental database of prior experiences to draw upon, it would seem to reason that seasoned clinicians should have a clear advantage over novice clinicians in carrying out System 1 decision-making processes because of their accumulated "databases" of clinical experiences. Jefford, Fahy, and Sundin (2010, p.129) argue against making such a leap in logic, however, asserting that "using intuition in rapidly evolving critical situations may actually lead to detrimental actions because systematic decision making has not been used." Although System 1 decision making "is fast, frugal, requires little effort, and frequently gets the right answer," it is far from perfect and occasionally fails "catastrophically" (Croskerry, 2009a, p. 1023). Regardless of the experience level of the clinician, System 1 decision-making processes alone are frequently not sufficient in health care decisions (Croskerry, 2009a; Croskerry and Norman, 2008; Jefford, Fahy, & Sundin, 2010).

In contrast to the intuitive, recognition-primed nature of System 1 processes, System 2 processes are consciously analytical and are not dependent upon the accumulated knowledge of the clinician. Instead of relying upon a robust database of prior clinical encounters to subconsciously power the clinician's decision-making process, System 2 decision making entails conscious consideration of data, algorithms, and decision trees ("arborization") based on known evidence and best practice (Croskerry, 2009a). Because System 2 decision making is logical, rational, systematic, and hypothesis driven, it requires purposeful and conscious thought on the part of the clinician and is less rapid than System 2 decision making. In isolation, the objective nature of System 2 processes may yield more accurate decisions than System 1 processes. The inherent limitations of both System 1 and System 2 decision-making processes necessitate the use of a combined approach in order to improve the accuracy of clinical decision making. When clinicians use both System 1 and System 2 approaches together ("dual process theory"), this serves as the underpinning for the diagnostic reasoning process (Bate, Hutchinson, Underhill, & Maskrey, 2012; Croskerry 2009a; Croskerry, 2009b).