

Practice Patterns Change While Outcomes Remain Steady Among Older Anesthesiologists

San Diego—Compared with their younger counterparts, older anesthesiologists have similar patient outcomes, but their practice patterns differed.

The number of major adverse events was similar among older and younger anesthesiologists, but older anesthesiologists were more likely to perform shorter outpatient surgical cases requiring monitored anesthesia care, and they did so on healthier patients during normal daytime work hours.

With an aging workforce, the role of senior anesthesiologists requires greater examination, noted Lee-lynn Chen, MD, professor of anesthesiology at the University of California, San Francisco School of Medicine, yet few quantitative studies have focused on outcome measures and even fewer have examined the practice patterns of anesthesiologists.



“Based on the age of the provider, we were able to determine that there was actually no increase or decrease in [patient] mortality,” Dr. Chen said. “Older anesthesiologists do not exhibit increased rates of adverse complications compared to younger anesthesiologists. However,” Dr. Chen added, “anesthesiologists are likely to alter their practice patterns as they age, which may reflect self-aware compensation for the physiologic changes of aging.”

Using 2014 data from the National Anesthesia Clinical Outcomes Registry, Dr. Chen and colleagues Adrian Liao, PhD, Jeana E. Havidich, MD, and Richard P. Dutton, MD, MBA, analyzed every anesthesiologist with a known age who participated in at least 100 cases. The researchers presented their study at the 2015 American Society of Anesthesiologists (ASA) annual meeting (abstract A1012).

Practice pattern measures included:

- types of anesthesia performed;
- work shifts and days (mornings, evenings, nights, weekends, holidays);
- workload status (full-time or part-time);

- care team delivery model;
- duration of the surgical cases performed;
- anesthesia base units; and
- types of surgeries (inpatient/outpatient status, procedure, codes).

Outcome measures included mortality, medication error, unplanned reintubation, unintended patient awareness, delayed emergence and hemodynamic instability.

Anesthesiologists were divided into three age groups based on their frequency distribution: less than 45 years (36%), between 45 and 54 years (31.5%) and 55 years and older (32.4%). The final sample was composed of 3,880,444 cases from 5,334 providers.

Few Age-Related Outcome Differences

The patient mortality rate was 3.6 per 10,000 cases. “As many studies have shown, outcomes were associated with ASA physical status [ASAPS],” said Dr. Chen. “ASAPS 4 and 5 patients were more likely to die compared to their healthier cohorts.” There was no mortality difference related to provider age.

Event	Anesthesiologist Age Group			P Value
	<45 y	45-54 y	>54 y	
Mortality	4.50	2.91	3.23	0.082
Medication error	0.67	0.15	0.39	0.321
Unplanned reintubation	4.41	4.27	4.13	0.936
Awareness during procedure	0.42	0.58	0.33	1.000
Delayed emergence	1.94	2.10	5.43	0.289
Hemodynamic instability	352.86	268.8	302.61	0.001

As shown in Table 1, patient outcomes did not vary significantly between anesthesiologist age groups, except for hemodynamic instability.

According to Dr. Dutton, MD, MBA, chief quality officer of United States Anesthesia Partners, in Houston, an aging workforce means older anesthesiologists play a bigger role in patient care than ever before. Dr. Dutton was the director of the Anesthesia Quality Institute at the time of the study.

With regard to the study, Dr. Dutton observed, “If anything, the older anesthesiologists’ outcomes are slightly better.”

He also said, “There may be a slight increase in adverse events in the first year or two out of residency, which is not particularly surprising, since this is when most providers are learning the fastest. And that’s a fairly steep learning curve.” Interestingly, older anesthesiologists were more likely to perform monitored anesthesia care and less likely to perform regional and neuraxial anesthesia.

With respect to changes in practice patterns, the researchers found that older anesthesiologists were less likely to work evenings, weekends and holidays, and more likely to work part-time and with a delivery team; they were also more likely to take on outpatient cases and nonsurgical OB/GYN cases ($P < 0.0001$ for all). Older anesthesiologists were also more likely to perform shorter surgical cases and be involved in surgeries with lower base units. Nevertheless, the most common type of procedure was the same—colonoscopy—regardless of age.

“So we think that providers self-regulate as they age,” Dr. Dutton explained. “All things considered, this is good. It’s a message of professional responsibility; it shows that we adjust our practice to match our capabilities and preserve a consistent level of patient outcomes.”

Study Shows Safe Practices

“The bottom line is that no matter how you slice it, we anesthesiologists practice very safely,” Dr. Dutton added. “There have been questions about whether we should have an age limit for anesthesiologists or do things like set mandatory competency tests. But my short answer to that is the public shouldn’t be too concerned. It turns out we police ourselves very well, and in this large sample there aren’t any differences in quality based on the provider’s age.”

Major complications occurred at a rate of 18.4 per 10,000 cases. However, in this initial analysis, it was the middle-aged group (providers between 45 and 54) who had more major adverse events compared with older anesthesiologists.

“Again, the patient’s ASAPS may have played a part in this, with middle-aged anesthesiologists caring for sicker patients,” said Dr. Chen. “Furthermore, middle-aged anesthesiologists were more likely to care for inpatients under general anesthesia for longer cases—all of which have higher complications rates. If you had regional anesthesia, you had fewer major complications compared to general anesthesia. Unsurprisingly, longer cases resulted in more major complications.”

With respect to minor events, older anesthesiologists also fared well. However, Dr. Chen reported that the youngest cohort (<45 years) had the fewest complications.

“Anesthesiologists are likely to alter their practice patterns as they age,” said Dr. Chen. “This could be because of lifestyle issues, physical energy or the financial needs of the anesthesiologist.”

Dr. Chen cited several possible limitations to the study, including inadequate risk adjustment, confounding in measurement, confounding in reporting and reporting bias. “These are self-reported data,” he concluded, “so we may not be capturing all of the outcomes that are present We plan to expand our analysis to adjust for confounding variables before publication.”

A Big Question

Peter Killoran, MS, MD, assistant professor of biomedical informatics and assistant professor of anesthesiology at the University of Texas Health Science Center at Houston, commended the researchers’ efforts in addressing such an important subject, but said more needs to be done to understand the evolving workload of aging anesthesiologists.

“It’s a big question,” said Dr. Killoran. “We need to understand how age impacts our profession and how we execute it. There’s a perception that older anesthesiologists learn to keep themselves out of trouble, but it’s very hard to define how they are able to do that. Maybe they realize what their limitations are because they’ve been doing this for so long, and thus they don’t put themselves in difficult positions, but that’s a very nebulous idea.”

As Dr. Killoran explained, the older providers in a group practice typically avoid frequent calls and are less inclined to take the more daunting cases, especially in the middle of the night.

“Older anesthesiologists tend to work during the day; they tend to do smaller cases; and they tend to work in a more controlled environment,” he said. “They have greater administrative responsibility or leadership responsibility that replaces their time in the operating room, [which] is incredibly valuable because of their experience.

“But how do we quantify that?” he asked. “And how do we understand that process so we can help people make the right decisions to protect themselves?”

A Medicolegal Look

Mark F. Weiss, JD, an attorney who specializes in business and legal issues affecting physicians, found it laudable that older anesthesiologists self-regulate their schedules and recommended they consider the impact their actions may have on their group ownership and employment rights. “Older anesthesiologists need to be cognizant of what their group’s organizational

documents provide when self-regulating their schedules,” said the partner at The Mark F. Weiss Law Firm. “Do they allow the doctor to adjust his or her schedule, either in terms of caseload, call obligations or types of cases?”

“If those agreements don’t allow the doctor to self-regulate his or her schedule, then it would have to be negotiated,” Mr. Weiss added. “The same issue applies, perhaps even more so, if the doctor is simply an employee of, say, a hospital or some other large entity.

“In the case of a physician who is one of the group’s owners, there’s another very important consideration,” he said. “That’s the question of whether cutting back his or her schedule will trigger an unfavorable event. For example, I’ve seen situations where a partner’s desired schedule change would have triggered a buyout of his shares at an unfavorable valuation.”

—Chase Doyle and Michael Vlessides

The interviewees reported no relevant financial disclosures.

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