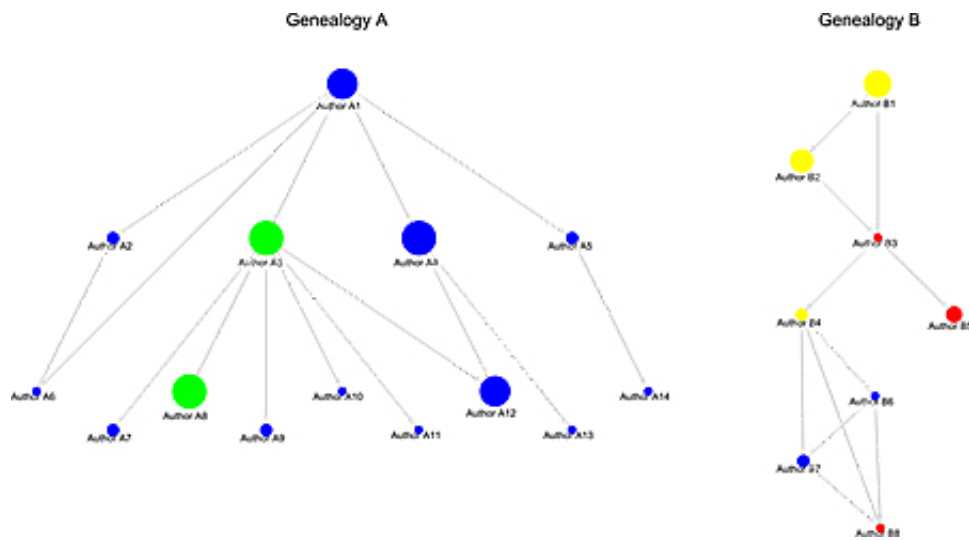


Medical research influenced by training 'genealogy'

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Many researchers share residency or fellowship training under the same mentor, or other physicians trained by the same mentor -- a phenomenon called medical academic genealogy. Credit: UC San Diego Health

By analyzing peer-reviewed scientific papers that examined the effectiveness of a surgical procedure, researchers at University of California, San Diego School of Medicine provide evidence suggesting that the conclusions of these studies appear to be influenced by the authors' mentors and medical training. The study is published January 4 by the *Annals of Neurology*.

"Doctors are often faced with analyzing an expanding number of

published articles to seek guidance in terms of evidence on how best to treat their patients," said senior author Clark C. Chen, MD, PhD, vice-chair of research and academic development in the Department of Neurosurgery at UC San Diego School of Medicine. "The challenge is magnified by the fact that many articles present contradictory results. Making sense of the aggregate of these articles requires a thorough understanding of medicine, as well as potential biases of the published article."

In their study, Chen and team analyzed 108 published articles that investigated whether or not surgical removal of a type of invasive brain tumor (high-grade gliomas) improved overall patient survival. Seventy-six of the 108 articles (70 percent) showed that the more tumor removed by the surgeon, the longer the patient lived. However, 32 (30 percent) of the articles concluded that surgical removal of this type of brain tumor did not necessarily affect patient survival.

"If you were a surgeon simply counting up the number of published articles in support of or against this surgery, you would be convinced that more complete removal of high-grade gliomas would likely benefit your patient," said the study's first author, Brian Hirshman, MD, staff research associate at Moores Cancer Center at UC San Diego Health. "But the reality is far more complicated."

Applying methods typically used to study social networks, the UC San Diego team found that many of the authors of the papers evaluated are related by medical training. That is, many researchers who published in this field share residency or fellowship training under the same mentor, or other physicians trained by the same mentor—a phenomenon that Chen and Hirshman call "medical academic genealogy."

The team found that if an article was authored by someone from a genealogy whose founder is a neurosurgeon, its results were more likely

to support maximal tumor removal for patient survival. In contrast, if an article was authored by someone from another genealogy, one founded by a radiation oncologist, for example, it was less likely to support maximal tumor removal for high-grade gliomas.

"The results are highly suggestive that the mentor and [medical training](#) of the researcher strongly influences the types of article that a researcher publishes throughout his or her career," said Chen. "The influence of mentorship and training on one's creative work is well understood in the fields of philosophy, music and the arts. In this study, we show the same effects are present in medical research."

"Understanding these potential biases will allow us to better interpret the medical literature, improve the quality of patient care and improve the training process for the next generation of physicians," said Bob S. Carter, MD, PhD, chairman of the Department of Neurosurgery at UC San Diego School of Medicine.

As a follow-up, Chen and his team developed statistical methods to evaluate peer-reviewed literature in a way that accounts for the medical academic genealogy of contributing authors. While the results are not yet published, they report that, after correcting for the genealogy effects, published literature robustly supports the notion that maximal [surgical removal](#) of high-grade gliomas is associated with improved patient survival.

With this in mind, Chen looks forward to the completion of the Jacobs Medical Center at UC San Diego Health, scheduled to open in 2016. The new hospital will include 14 operating rooms and four intraoperative imaging suites. "The ability to view MRIs throughout surgery will allow surgeons to achieve a more complete removal of high-grade gliomas, and raise the quality of care for our patients," Chen said.

More information: *Annals of Neurology*,
[dx.doi.org/10.1002/ana.24569](https://doi.org/10.1002/ana.24569)

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