



Colombian Journal of Anesthesiology

Revista Colombiana de Anestesiología

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“Scientific truth” in modern times: some considerations

“La Verdad Científica” en tiempos modernos - algunas consideraciones

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Centuries ago, “truth” was, what the king and/or the bible said, undebatable, whether it was reasonable or not. Since the age of enlightenment we accepted, that a scientific truth cannot be simply stated; it must be measurable and should be reproducible in public experiments. This attitude has promoted the rise of science through the last centuries: universities were built, researchers and scientists were highly respected, knowledge and wisdom were highly appreciated and daily life was organized around application, creation and transfer of knowledge. Knowledge itself was considered a kind of property of wise scientist who kept and developed it, of course with the best intentions for the improvement of the society.

Today, we are confronted with a public domain, where scientific truths are doubted as “fake news” and unfounded claims are called “alternative facts.” Children are no longer vaccinated, the human contribution to the world climate change is neglected, conspirational theories grow and science has lost the faith of the masses. Of course, there were (and still are) fraudulent scientist who can discredit their serious colleagues as well, but the real problem has a different level: the available amount of knowledge has become unmeasurable! Every owner of a smartphone has access to more information than the famous library of the University of Padova could offer ever. Knowledge has become a public property, and we miss these wise people, who were respected by the masses,

were able to interpret the findings, to alert in case of problems and to prevent errors. Everybody can book a holiday on the Internet without a travel agent—so, why do you need a general practitioner to stay healthy, if you can Google anything? We lack the real experts!

We are facing a paradox: while knowledge is better spread than ever before, the complexity of life, the complexity of the knowledge, and hereby the need of precision when dealing with this knowledge are increased. However, the greater spread and the better the accessibility of the knowledge for everyone requires a simplification of the message. And we scientist seem unable to deliver both, the precision and the simplicity. There is an obvious communication gap between the scientific community and the masses.

We have to accept, that “truths” can be dynamic. New insights have changed and will also change in future our perception of the world and, for example, our understanding of life and disease. There are only very little “eternal truths.” We have to accept that those, who search for their “truth” and are not open for the result, will find what they want to find: search on the Internet, for example, for “flat earth theory,” and you might find sufficient information to believe that the earth indeed might be flat or—if you are a hardliner—even MUST be flat.

Hereby scientific truths become discussable, because if you do not like certain findings, it becomes easy to call them “fake” or “alternative” in the public space. Therefore,

How to cite this article: Klimek M. “Scientific truth” in modern times: some considerations. *Colombian Journal of Anesthesiology*. 2020;48:59–60.

Read the Spanish version of this article at: <http://links.lww.com/RCA/A906>.

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Colombian Journal of Anesthesiology (2020) 48:2

<http://dx.doi.org/10.1097/CJ9.000000000000145>

scientists have to enter the public debate (and most of them are not trained to do so). In this public debate, we must be aware, that knowledge can be instrumentalized: companies paying for research, governments listening to the loudest voices—in this setting it becomes even more difficult to strive for the real, the scientific truth!

Nevertheless, there is no other option! We have to conduct research, and must be open for unexpected results. Money invested in science should be free of secondary interests—this requires independent, altruistic sponsors and makes it mandatory to be as open as possible about any

possible conflict of interests. We have to create evidence and we have to share our results and to communicate our findings in a clear and understandable way, accepting, that they represent the current state of knowledge and might be adapted or even corrected in the future.

Discussing with fundamentalists can be extremely challenging, but logics and arguments are extremely strong, too. If science leaves the public space to those with the hardest voices, to those who consider intellectuals as suspicious, life will become disastrous—not only for the scientists!