EDITORIAL

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The conquest of errors

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False knowledge is more dangerous than ignorance.
–George Bernard Shaw–

In the current era of evidence-based healthcare, clinicians rely on scientifically valid evidence from studies of due impartiality because they must make expert decisions on behalf of patients with the expectation of highly predictable outcomes.

Chance, one of the errors, is either inevitable nuisance or nurture in human history. Human biological evolution is benefited exclusively from genetic mutation errors. On the other hand, advances in knowledge is retarded in part by errors in quantifying or interpreting the contributions of chance to the selection and observation of model samples.

In the published articles, which are the fundamental resources for scientific clinical evidence, the researchers' understanding of the impact of chance on their findings tends to be insufficient to accurately inform readers who have no formal training in scientific research activities. It is concerning that so many articles are published without due interpretation of the meaning of probability of findings by chance alone.

Tomasetti et al.[1] enumerated the role of chance in cancer etiology. In total, 66% of gene mutations causing cancer are attributable to chance. Many experts in various fields have reported that numerous significant phenomena in human history are the result of happenstance. Chance is a damaging risk and uncertainty. It has power to make clinician's efforts and patient's resources end in vain since chance is beyond our control. For example, the 66% of cancer patients mentioned above will suffer from cancer regardless of attempts to prevent the onset of cancer. Early detection and intervention prior to the irreversible fatal stage is the only option available to these patients. Thus, a sophisticated understanding of the role of chance ushers clinicians to the efficient diagnosis and treatment.

Accurate interpretation of *P*-value estimated from statistical test of a hypothesis should be always provided to readers of articles to consider the degree of impact of chance embedded in the researchers' findings. For instance, *P*=0.04 which means a 4% of chance alone in observing the outcome in the article gives clues to readers the similar outcome will be predictable in their clinics among 4% of patients by chance alone and 96% of patients by human endeavor.

Scientist clinicians have a responsibility to produce scientifically valid evidence that will help inform other clinicians. Fighting with errors is the holy job of scientist; a metaphor of Sisyphus' endless rolling a huge boulder up a steep hill of 0% errors in selection and observation of model samples. Harvey[2] boiled down the essence of technology advancement of the human condition to the conquering of barriers in time and space. I would thus like to put forth the essence of clinical research activities that will advance human knowledge as the conquest of obstacles of errors including bias as well as chance.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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