

5.3 Statistical enquiries involving human subjects should, as far as practicable, be based on the freely given informed consent of subjects even if participation is required by law. The identities of the subjects should be kept confidential unless consent for disclosure is explicitly obtained. The purpose and objectives of the study should be clearly stated to the subject, especially in small trials wherein sample sizes may not be sufficient to establish valid conclusions. In voluntary inquiries, subjects should not be under the impression that they are required to participate; they should be aware of their entitlement to refuse participation and withdraw data supplied at any stage for whatever reason. Information that would be likely to affect a subject's willingness to participate should not be deliberately withheld. Statisticians should be aware of the intrusive potential of some of their work. They have no special entitlement to study all phenomena. The advancement of knowledge and the pursuit of information are not themselves sufficient justifications for overriding other social and cultural values. The statistician should try to minimize disturbance both to subjects themselves and to the subjects' relationships with their environment. Excessive risk to research subjects and excessive imposition on their time and privacy should be avoided.

FOREWORD

It has been an aspiration of the Philippine Statistical Association (PSA) to institute a system of accreditation or certification for statistics professionals, similar to those existing in Australia, New Zealand, the United Kingdom, and the United States. On at least two fronts, the label 'statistician' may have been misused and misappropriated by unscrupulous professionals.

In graduate school, theses and dissertation students fall prey to unqualified professionals giving advice, often inaccurate, on statistical methodology and analysis. During election campaigns, results of opinion polls conducted by pollsters/'statisticians' are released to the media without the necessary technical information on sampling design, questionnaire design, field operations and data processing, among others.

The accreditation stage will deal with what would be the qualifications: education, work experience, research record as well as the behavior or ethical standards of the statistics practitioner. This Code addresses the latter. The necessary academic background, and work experience needed to bring about the conduct and/or behavior of such professionals may be deduced from this Code.

A respected statistician in the service of the PSA sums these all up into 'Service over pecuniary consideration'. Statisticians should accept full responsibility for their professional performance and fulfill all their commitments. This may be a good starting point.

There are numerous codes of conduct/ethics and related materials available as reference. This exercise has examined the Codes in effect in Australia, New Zealand, United Kingdom, and the United States. A more comprehensive source is the one prepared by the International Statistical Institute, 'Declaration on Professional Ethics'. Other references have been released by the United Nations Statistics Division: Fundamental Principles of Official Statistics and Principles Governing International Statistical Activities.

This document liberally lifts well-articulated passages from these documents to explicate the results arising from the consultative discussions conducted by the Philippine Statistical Association to jumpstart the preparation, improvement and validation processes.

- 4.2 Statisticians should not accept contractual conditions that are contingent upon a particular outcome from a proposed statistical inquiry. Statisticians should deliver the statistical services/products to clients as agreed upon. Statisticians should carry out work with due care and diligence in accordance with the requirements of the employer or client and should, if their professional judgment is over-ruled, indicate the likely consequences.

They should “*explain any expected adverse consequences of failures to follow through on an agreed-upon sampling or analytic plan.*” While statisticians operate within the value systems of their societies, they should always uphold their professional integrity without fear or favor. They should not engage or collude in selecting methods designed to produce misleading results or in misrepresenting statistical findings by commission or omission.

5. Obligations to Respondents

- 5.1 Statisticians should ensure confidentiality of private information being collected from respondents. Statisticians are obliged to protect the privacy and confidentiality of research subjects and data concerning all respondents, whether the information is obtained directly from them, from other persons, or from administrative records. Statisticians should take appropriate measures to prevent their data from being published or otherwise released in a form that would allow any subject’s identity to be disclosed or inferred. For small-scale specialized studies, possible secondary and indirect uses of the data should be anticipated when obtaining approvals from research subjects; approvals as may be appropriate for peer review and for independent replication of analyses must also be obtained from research subjects.
- 5.2 Statisticians should in their professional practice safeguard basic human rights and should avoid any actions that could adversely affect such rights.

Statisticians should not think of themselves as the only experts in the area. They should promote sharing of (nonproprietary) data and methods. As appropriate, they should make suitably documented data available for replicate analyses, metadata studies, and other suitable research by qualified investigators.

- 3.5 Statisticians should seek to conform to recognized good practice including quality standards which are in their judgment relevant, and should encourage their colleagues to do likewise. Statisticians should appreciate new statistical methodologies developed by colleagues. Assessments should be directed at the methods themselves rather than at the individuals who developed, selected or used these methodologies.

Obligations to Funders and Employers

- 4.1 Statisticians should maintain objectivity in handling statistical work at all times even if these activities are funded by interest groups. Statisticians should not allow themselves to be used by interest groups. They should not manipulate data to produce results in favor of the employer/client. Statisticians should clarify in advance the respective obligations of the funder and the statistician. Reports of the findings should (where appropriate) specify their role. Statisticians shall declare any interests, financial or otherwise, which could be perceived as influencing the outcome of work undertaken for a client or employer. Statisticians should consider the available methods and procedures for addressing a proposed inquiry and should provide the funder or employer with an impartial assessment of the respective merits and demerits of alternatives. Where appropriate, they should present a client or employer with choices among valid alternative statistical approaches that may vary in scope, cost, or precision. Funders or employers may legitimately require statisticians to keep certain furnished information confidential. However, statistical methods and procedures that have been utilized to produce published data should not be kept confidential.

DEFINITION OF TERMS

The Merriam-Webster's Collegiate Dictionary definition of statistics is: "a branch of mathematics dealing with the collection, analysis, interpretation, and presentation of masses of numerical data," while the American Heritage Dictionary defines **it** as: "the mathematics of the collection, organization, and interpretation of numerical data, especially the analysis of population characteristics by inference from sampling." Integrating both, the Random House Unabridged Dictionary defines it as: "the science that deals with the collection, classification, analysis, and interpretation of numerical facts or data, and that, by use of mathematical theories of probability, imposes order and regularity on aggregates of more or less disparate elements."

ASA President Jon Kettenring prefers to define statistics

"...as the science of learning from data and is essential for the proper running of government, central to decision making in industry, and a core component of modern educational curricula at all levels."

Statisticians are professionals who are trained to "provide crucial guidance in determining what information is reliable and which predictions can be trusted" through the application of statistical methods. *Statisticians help determine the sampling and data collection methods, monitor the execution of the study and the processing of data, and advise on the strengths and limitations of the results. They must understand the nature of uncertainties and be able to draw conclusions in the context of particular statistical applications.*

[<http://www.amstat.org/careers/index.cfm?fuseaction=whatisstatistics>].

Statisticians apply their mathematical and statistical knowledge to the design of surveys and experiments; the collection, processing, and analysis of data; and the interpretation of the experiment and survey results. Opinion polls, statements of accuracy on scales and other measuring devices, and information about average earnings in an occupation are all usually the work of statisticians. Statistical methods may be applied to a variety of subject areas, such as biology, economics, engineering, medicine, public health, psychology, marketing, education, and sports. Many economic, social, political, and military decisions cannot be made without statistical techniques.

- 2.10 Statisticians should strive for relevance in statistical analyses. Typically, each study should be based on a competent understanding of the subject matter and statistical protocols that are clearly defined for the stage (exploratory, intermediate, or final) of analysis to justify both the practical relevance of the study and the amount of data to be used.
3. Duty to Profession / Obligation to Colleagues
- 3.1 Statisticians should promote the growth of their profession by regularly updating themselves on new statistical methods/areas.
- 3.2 Statisticians should strive to upgrade their professional knowledge and skill and maintain awareness of technological developments, procedures and standards which are relevant to their field, and should encourage their colleagues to do likewise.
- 3.3 Statisticians should interact with colleagues to promote their profession. Statisticians should be willing to share their statistical knowledge and expertise with colleagues. Statisticians should be open to questions/suggestions from colleagues. They should mentor and encourage young statisticians. Statisticians should encourage and support fellow statisticians in their professional development and, where possible, provide opportunities for the development of new entrants to the profession.
- 3.4 Statisticians should regard their fellow statisticians with respect. Statisticians should act with integrity towards fellow statisticians and towards members of other professions with whom they interact in a professional capacity, and should avoid engaging in any activity which is incompatible with their professional status. While it is their responsibility to properly correct any misuse or misinterpretations in statistics, no statistician should cast doubt on the professional competence of another. They should not be condescending or patronizing toward fellow statisticians. They should express different opinions in appropriate venues and should not claim work done by others. They respect and acknowledge the contributions and the intellectual property of others. In publications or testimony, the identity of the person responsible for the statistical work must always be apparent. not lay claim to any level of competence which they do not possess.

2.7 Statisticians must maintain transparency in their statistical undertakings.

They clearly and fully disclose the process undertaken to safeguard validity and address the suitability of the analytic methods and their inherent assumptions relative to the circumstances of the specific study. They should identify the non-proprietary computer routines used to implement the analytic methods. When reporting analyses of volunteer data or other data not representative of a defined population, they should include appropriate disclaimers. They should disclose the limits of statistical inference of the study and possible sources of error. They should disclose any significant failure to follow through fully on an agreed sampling or analytic plan and explain any resulting adverse consequences. In publications or testimony, they should identify the ultimate financial sponsor of the study, the stated purpose, and the intended use of the study results. They should report the sources and assessed adequacy of the data as well as the data cleaning and screening procedures used, including any imputation.

2.8 Statisticians should always inform users about the limitations of their data.

They should also provide documentation on sampling designs of surveys conducted. They should always provide summaries or results as well as complete and accurate metadata of their research studies to the public and/or clientele, subject to proprietary rights.

2.9 Statisticians should have strong educational foundation in statistics. Statisticians should be knowledgeable in the proper use of statistical tools, methods and techniques in their specific areas of expertise and should be ready to defend their choice of statistical methodologies in their studies. They should exhibit competence and high standard in their work and must adhere to scientific rules in the production of knowledge and conform to high quality standards of data and output.

CODE OF ETHICS

0. Guiding Principles

Statistical practitioners should pay responsible attention to the following in the conduct of their professional activities:

The social value of their work and its consequences on, among others, respect for the life, liberty, dignity, and property of other people.

The use of statistical work in the pursuit of the truth at all instances and not toward justifying predetermined outcomes.

The acceptance that while statistics has a body of established knowledge, it also has many unresolved issues that requires frank and open discussion.

The constant upgrading of competence in their work.

Adherence to all applicable and ethically appropriate laws and regulations, as well as international covenants .

Management of freely-provided information into data archives consistent with responsible protection of the safety and confidentiality of human beings and organizations involved.

[<http://www.amstat.org/about/ethicalguidelines.cfm>]

1. Public Interest

1.1 Statisticians should promote initiatives to make the public aware of the data being produced. Statisticians are mandated to advance public knowledge and understanding of statistics and to counter false or misleading statements. They shall not make any public statement in their professional capacity unless competent to do so and, where appropriate, authorized to do so.

Statisticians should always advocate for the proper use of appropriate statistics. Hence, it is important that statisticians be involved in the initial stages of the research design, preferably in the planning stage to ensure appropriate statistics are generated and used properly.

- 1.2 Statisticians must be ready to share information with the public. Statistical inquiry is predicated on the belief that greater access to well-grounded information is beneficial to society. The fact that statistical information can be misconstrued or misused, or that its impact can be different on different groups, is not in itself a convincing argument against its collection and dissemination. Nonetheless, statisticians should consider the likely consequences of collecting and disseminating various types of data and should guard against predictable misinterpretations or misuse. Statistical reports must be written and released with due consideration of the intended audience, and proprietary rights in the case of private funds.

For the general public, statisticians should be able to convey the scope, relevance, and conclusions of a study without any technical distractions. For the professional literature, statisticians must strive to answer the questions likely to occur from among their peers.

Statisticians should always focus on how their study can benefit the Filipino community in general. Statisticians should harness the possibilities open to them to extend the scope of statistical inquiry, and to communicate their findings, for the benefit of the widest possible community. Statisticians shall in their professional statistical practice have regard for procedures designed to ensure the highest ethical standards. Statisticians should have appropriate knowledge and understanding of relevant legislation, regulations and standards within their chosen fields and that they should ensure compliance with such requirements.

2. Integrity and Competence

- 2.1 Statisticians should at all times uphold the reputation of the profession and seek to improve professional standards through participation in their development and use, and should avoid any action which will adversely affect the good standing of statistics and statisticians. Statisticians should accept full responsibility for their professional performance and fulfill their commitments and obligations. They, however, have the right of disengagement in the face of a dilemma involving professional standards or conscience. When applicable, they should also promptly and

publicly own and correct any errors discovered after publication of any research undertaken.

- 2.2 Statisticians should be willing to help strengthen the work of others through appropriate peer review. When doing so, they are expected to complete the review promptly and well.
- 2.3 Statisticians should regard criticisms constructively as well as respect differences of opinion. They should not assume nor pretend to know everything about statistics. They should admit their limitations and clearly state their statistical qualifications and experience relevant to their work. They should not condone retaliation against or damage to the employability of those who responsibly call attention to possible scientific error or misconduct.
- 2.4 Statisticians do not manipulate data at all costs nor do they allow improper use of statistical work and data. Statisticians should stick to facts. They do not manufacture, fabricate or alter survey results nor do they exaggerate the accuracy or explanatory power of their data. Statisticians deplore all types of professional misconduct, not just plagiarism and data fabrication or falsification.
- 2.5 Statisticians should conform to recognized good practice including quality standards which are in their judgment relevant and ethical, and shall encourage their colleagues to do likewise. To conduct certain inquiries statisticians need to collaborate with colleagues in other disciplines, as well as with interviewers, clerical staff, students, etc. In these cases statisticians should make their own ethical principles clear and take account of the ethical principles of their collaborators.
- 2.6 Statisticians should exercise prudence in sharing statistical data and interpretation.

Statisticians must be discriminating as to when, how and to whom with regard to data. Where full disclosure of research parameters to subjects or to other investigators is not advisable, as in some randomized clinical trials, statisticians as part of the research team should be ready to inform them of the nature of the information withheld and the reason for withholding it.