


From Scholarship to Practice: Standardizing Calls to Action in Neuroethics

Kyrstin Lavelle, Laura Y. Cabrera & Judy Illes


To cite this article: Kyrstin Lavelle, Laura Y. Cabrera & Judy Illes (2025) From Scholarship to Practice: Standardizing Calls to Action in Neuroethics, AJOB Neuroscience, 16:3, 196-202, DOI: 10.1080/21507740.2025.2450537

To link to this article: <https://doi.org/10.1080/21507740.2025.2450537>

 View supplementary material [↗](#)

 Published online: 31 Jan 2025.

 Submit your article to this journal [↗](#)



 Article views: 143

 View related articles [↗](#)

 View Crossmark data [↗](#)

 Citing articles: 1 View citing articles [↗](#)

From Scholarship to Practice: Standardizing Calls to Action in Neuroethics

Kyrstin Lavelle^a, Laura Y. Cabrera^b  and Judy Illes^a 

^aUniversity of British Columbia, Neuroethics Canada; ^bPennsylvania State University

ABSTRACT

A significant goal of neuroethics is to offer neuroscientists, health care providers, law- and policy-makers and others, ways of thinking and acting on matters relevant to brain health and conditions that affect the central nervous system. This goal and related calls to action have been derived from theory or empirical work and bring different levels of normative force. To bring the latter in particular to the foreground of discussion, we explored for this Policy Forum different calls to action as they are associated with chosen terminology, the definitions of terms, origins to which they are benchmarked, locations in text, and targeted audiences. We find variability on all of these factors as they appear in the original foundational journals for neuroethics: AJOB Neuroscience and Neuroethics. We recommend that for a field whose very existence relies on uptake of advice, better consistency of language will improve credibility, acceptance, and implementation.

KEYWORDS

Action; language; neuroethics

INTRODUCTION

With the focus of neuroethics on the social, legal and philosophical aspects of neuroscience (Das et al. 2022), scholarship in the field describes strategies for critical inquiry, probes patterns of practice, and sometimes delivers ideas for actionable responses to questions that arise (O'Shaughnessy et al. 2023). Actionability has been a point of contention, however, if not a criticism for translation (Wexler and Specker Sullivan 2023), in some although not all contexts (Illes and Hannan 2023) as uptake and implementation of strategies can be challenging.

This challenge is not unique to neuroethics *per se*. Across disciplines, consistent terms are critical for scholars to be able to build their scholarship on the foundation of work that precedes it. Stability across terminology allows for conversations to take place about common constructs and facilitates knowledge accumulation (Hill, Kern, and White 2012). Joshi et al. (2019) highlighted this principle for the clinical practice of anesthesia for example, noting that inconsistencies and unclear definitions can obstruct implementation of recommendations.

In interdisciplinary scholarship such as neuroethics, especially complex intellectual and psychosocial dynamics result from different uses of certain

concepts, visions, and epistemologies (Cabrera and Bluhm 2020). We argue that with standardization, communication of neuroethics guidance will reach its intended goals on a large scale.

STRATEGIC OPPORTUNITY

We identified and collated all papers that called for action in the 14-year overlapping publication history of AJOB Neuroscience, the official journal of the International Neuroethics Society (INS), and Neuroethics, the namesake journal for the field. “Call for action” could take one of many forms. We defined it as the appearance of key terms: “oath,” “guid*,” “standard*,” “principle*,” “code*,” “framework,” “scaffold*,” or “recommend*” anywhere in the title or abstract of a paper. These terms were selected *a priori* based on existing literature and refined through pilot search strategies to reflect a broad sample.

We conducted an initial search of these terms in abstracts directly from the websites of the two journals. The search yielded 99 articles (58 from AJOB Neuroscience; 41 Neuroethics). We screened the full text of those papers and retained only those in which the keyword was used to suggest action as a core outcome of the article. This yielded 42 articles (24

AJOB Neuroscience; 18 Neuroethics). In a final step, we captured the frequency and qualitative use of specific terms, the scholarly topics addressed, the location of the relevant text, and the target audience. We noted information about the countries from which authors of these papers originated. We also assessed whether the terms were benchmarked to terms previously defined by a professional organization.

Primary coding was done by KL; LC and JI performed a secondary double-check. Key terms returned from the search were verified, counted once per article and tallied (Supplemental Material; A). We noted if an article used more than one key term to propose or describe an action, such as “recommendations” and a “framework” (“recommend*” and “framework”), when the action was proposed in the structure of the paper and when terms were used interchangeably within the same paper. We associated terms to topic of scholarship using definitions adapted from Leefmann, Levallois, and Hildt (2016). Target audience was recorded only if the articles explicitly stated one.

WORDS MATTER

Variations of “recommend*” ($n=15$) and “framework” ($n=14$) were the most frequently used terms in both journals (Supplementary Material; A). Variations on “guide*,” “principle” and “standards” were used sporadically otherwise. In 26% of articles (11/42), a key term was used interchangeably. For example, “recommend*” was used interchangeably with “suggest*” and “encourage”. “Framework” was used interchangeably with “model”, “approach”, and “map”. None of the papers explicitly benchmarked action terms to a definition from a professional organization, such as the Organization for Economic Co-operation and Development (OECD). We provide examples of definitions from professional organizations (Table 1). Sixteen papers explicitly mentioned at least one target demographic (researchers ($n=5$), health care providers/clinicians ($n=5$), government ($n=3$), ethicists ($n=2$), industry ($n=2$), neuroscientists ($n=1$), family and patients ($n=1$), journalists ($n=1$) and engineers ($n=1$)); (Supplementary Material; B). “Recommend*” ($n=2$) and “framework” ($n=3$) were used frequently for researchers and “recommend*” was the only key term used when addressing audiences such as family and patients. We did not find articles with the key guidance terms “oath*,” “code*” or “scaffold*,” although we are aware of their uses in journals outside the ones on which we chose to focus.

“Recommend*” was often used at the end of an article to propose action items that would address the issues

outlined earlier in a paper. In contrast, “framework” was more commonly used when the entire article focused on a new proposed framework. Typically, a framework constituted one action item, whereas “recommend*” was often associated with multiple. Additionally, “guide*” was frequently used in conjunction with other terms, such as “principle*” and “standard*.”

Figure 1 shows the frequency of each key term used across various topics of scholarship. The most prevalent topic of scholarship was neuroscience and society; “recommend*” was used 8 times in these papers, comprising 53% (8/15) of the total occurrences. Some categories predominantly featured a specific key term. For example, in the topic category for enhancement, “framework” was the most common term, with 75% of articles (3/4) proposing a novel framework. In contrast, terminology was more varied in other categories, such as the consciousness category that included five articles and four different key terms.

The majority of articles were from authors from only one country (79%, 33/42); 55% (23/42) had at least one author from the USA.

RECOMMENDATIONS FOR RECOMMENDATIONS

Using the definition of recommendation offered by the Council of Europe (Table 1), we recommend better standardization, consistency and benchmarking of terms used to call for action in neuroethics publications. In general, we found that key terms are being used differently, with no clear or explicit reason behind the choice of one term over another. This is true even for the two journals from which we could generally expect similar content. The frequency and distribution of key terms was variable across different scholarly disciplines, reflecting distinct terminological preferences across topics. The majority of articles reviewed did not specify a target audience, aligning with the findings of Wei et al. (2024) for INS abstracts. Among those articles that identified a target demographic, distinct patterns emerged in the frequency and use of key terms.

We acknowledge the limitation of the present analysis to the target terms within the two journals. We also acknowledge that complexity of language is, by definition, a feature of interdisciplinary scholarship. As such, the impact that standardization of normative language will have in practice will only be known if tested empirically in the future.

Through consistency, standardized terminology will minimize confusion and misunderstandings, and facilitate uptake for desired outcomes. This in turn will yield

Table 1. Definitions from selected professional organizations for benchmarking calls to action (ND: Not defined).

	Target Audience or Membership	Recommend*	Framework	Guide*	Standard*	Principle*	Oath	Code of Ethics; Code of Conduct	Scaffold	Policy
American Academy of Neurology (AAN)	Neurologists and professionals in the neurological sciences	ND	ND	Help to make decisions on the diagnosis and treatment of neurologic diseases.	ND	ND	ND	ND	ND	ND
American Psychiatric Association (APA)	Psychiatrists and professionals in the sciences of mental health	ND	ND	Provide evidence-based recommend-actions for the assessment and treatment of psychiatric disorders; are intended to assist in clinical decision making by presenting systematically developed patient care strategies in a standardized format.	ND	ND	ND	Ethical code to which members are bound to the medical profession, specifically defined in the Association's Principles of Medical Ethics.	ND	ND
American Psychological Association (APA)	Clinical and research psychologists	ND	ND	The process of establishing norms for a test. Cf. also Principle and Code of Ethics. For practice: A set of guidelines that delineate the expected techniques and procedures, and the order in which to use them, for interventions with individuals experiencing a range of psychological, medical, or educational conditions. Standards of practice have been developed by the American Psychological Association and other professional associations to ensure that practitioners use the most well researched and validated treatment plans available in their field.	ND	A fundamental rule, standard, or precept, especially in matters of morality or personal conduct. In the empirical sciences, a statement of an established regularity, similar to a law.	ND	A set of standards and principles of professional conduct, such as the Ethical Principles of Psychologists and Code of Conduct of the American Psychological Association (American Psychological Association, 2017)	In education, a teaching style that supports and facilitates the student through a new skill or concept, with the ultimate goal of the student becoming self-reliant.	

(Continued)

Table 1. (Continued)

	Target Audience or Membership	Recommend*	Framework	Guide*	Standard*	Principle*	Oath	Code of Ethics; Code of Conduct	Scaffold	Policy
American Society for Bioethics and Humanities (ASBH)	American and international bioethicists professionals and others with interests in health related ethics	ND	ND	ND	ND	ND	ND	Ethical concerns of persons involved in healthcare decision making and healthcare delivery.	ND	ND
	Human rights scholars in the 46 member states	One of two forms of non-binding EU acts: do not have legal consequences, but offer guidance on the interpretation or content of EU law and matters that concern human rights, democracy or the rule of law.	A set of common rules for national fiscal and economic policies that apply to all member states.	ND	Processes to ensure interoperability and safety, reduce costs and facilitate companies' integration in the value chain and trade.	Common principles and values that underlie life in the EU: freedom, democracy, equality and the rule of law, promoting peace and stability.	ND	Obligations of European Commissioners to apply their oath of independence and integrity in practice.	ND	Political direction and priorities; used for agenda-setting; issues of concern and actions to take.
Institute of Electrical and Electronics Engineers (IEEE)	Electrical and Electronics Engineers	Suggestions to users according to their needs.	Code for the basic functions of a system that can be conformed to the needs of that application.	ND	Published documents that establish specifications and procedures designed to maximize the reliability of the materials, products, methods, and/or services people use every day; address a range of issues, including but not limited to various protocols to help maximize product functionality and compatibility, interoperability, consumer safety, and public health.	High-level ethical principles that apply to all types of autonomous and intelligent systems.	ND	IEEE members' and staff's commitment to the highest standards of integrity, responsible behavior, and ethical and professional conduct.	Guidance or support from teachers, instructors or other knowledgeable persons that facilitate students to achieve their goals in learning.	ND

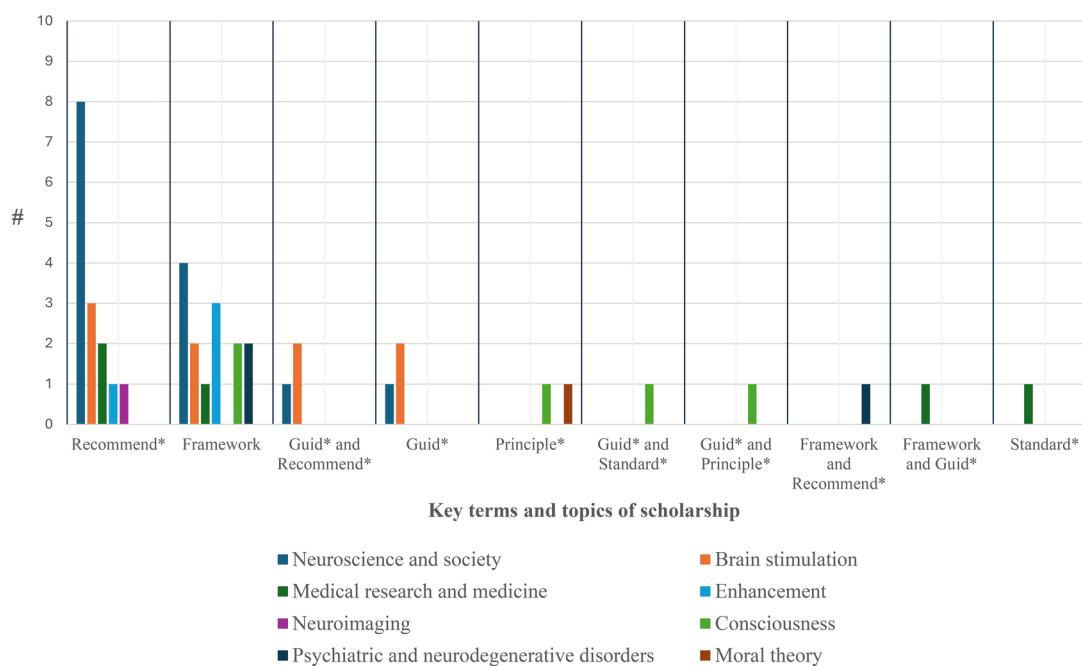


Figure 1. Key terms and topics of scholarship.

clearer communication and more effective application of action items in research and practice, and enhance dialogue, collaboration, communication, and knowledge synthesis across studies and disciplines. Standardizing terminology is also crucial for credibility, acceptance, and implementation by guidance-seeking communities. Each term brings different levels of formality, flexibility, enforcement, and scope. For some terms, there is an expectation of oversight by an authoritative body; others express community consensus. To this end, in Table 1, we summarize definitions for key target terms from professional organizations with which neuroethics is aligned for reference and example. It is not meant to be comprehensive, but provides a foundation for content matched to target audience.

While the first 25 years of neuroethics enabled the field to find its footing, take shape, and begin to contribute to policy discourse (e.g., United Nations Educational, Scientific and Cultural Organization (UNESCO; OECD), the next 25 years will define its future. Clarity and crispness will be as important as the courage neuroethicists require to take on the tough challenges of neuroscience that await us.

ACKNOWLEDGEMENTS

We thank Alejandra P. Negrón Ortiz; University of Puerto Rico, San Juan, for preliminary work on this project.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

FUNDING

This work was supported in part by the UBC Distinguished University Scholars Program (JI) and the North Family Foundation (JI; Distinguished University Scholar in Neuroethics). L.C. was supported by her Dorothy Foehr Huck and J. Lloyd Huck Chair in Neuroethics.

ORCID

Laura Y. Cabrera  <http://orcid.org/0000-0002-6220-7096>
 Judy Illes  <http://orcid.org/0000-0002-4791-8084>

REFERENCES

- American Psychological Association. 2017. Ethical Principles of Psychologists and Code of Conduct. (2002, amended effective June 1, 2010, and January 1, 2017). <https://www.apa.org/ethics/code>.
- Cabrera, L. Y., and R. Bluhm. 2020. Fostering neuroethics integration: Disciplines, methods, and frameworks. *AJOB Neuroscience* 11 (3):194–6. doi: [10.1080/21507740.2020.1778128](https://doi.org/10.1080/21507740.2020.1778128).
- Das, J., C. Forlini, D. M. Porcello, K. S. Rommelfanger, A. Salles, N. Akter, Global Neuroethics Summit Delegates, et al. 2022. Neuroscience is ready for neuroethics engagement. *Frontiers in Communication* 7 (December). doi: [10.3389/fcomm.2022.909964](https://doi.org/10.3389/fcomm.2022.909964).
- Hill, A. D., D. A. Kern, and M. A. White. 2012. Building understanding in strategy research: The importance of employing consistent terminology and convergent mea-

- tures. *Strategic Organization* 10 (2):187–200. doi: [10.1177/1476127012445239](https://doi.org/10.1177/1476127012445239).
- Illes, J., and A. J. Hannan. 2023. Synergies of translational and transnational neuroethics for global neuroscience. *AJOB Neuroscience* 14 (4):400–1. doi: [10.1080/21507740.2023.2257165](https://doi.org/10.1080/21507740.2023.2257165).
- Joshi, G. P., H. T. Benzon, T. J. Gan, and T. R. Vetter. 2019. Consistent definitions of clinical practice guidelines, consensus statements, position statements, and practice alerts. *Anesthesia and Analgesia* 129 (6):1767–70. doi: [10.1213/ANE.0000000000004236](https://doi.org/10.1213/ANE.0000000000004236).
- Leefmann, J., C. Levallois, and E. Hildt. 2016. Neuroethics 1995–2012. A bibliometric analysis of the guiding themes of an emerging research field. *Frontiers in Human Neuroscience* 10 (July):336. doi: [10.3389/fnhum.2016.00336](https://doi.org/10.3389/fnhum.2016.00336).
- O’Shaughnessy, M. R., W. G. Johnson, L. N. Tournas, C. J. Rozell, and K. S. Rommelfanger. 2023. Neuroethics guidance documents: Principles, analysis, and implementation strategies. *Journal of Law and the Biosciences* 10 (2):lsad025. doi: [10.1093/jlb/lsad025](https://doi.org/10.1093/jlb/lsad025).
- Wei, N. Y., R. J. Choi, L. S. Sullivan, and A. Wexler. 2024. Who does neuroethics scholarship address, and what does it recommend? A content analysis of selected abstracts from the international neuroethics society annual meetings. *Neuroethics* 17 (2):26. doi: [10.1007/s12152-024-09554-5](https://doi.org/10.1007/s12152-024-09554-5).
- Wexler, A., and L. Specker Sullivan. 2023. Translational neuroethics: A vision for a more integrated, inclusive, and impactful field. *AJOB Neuroscience* 14 (4):388–99. doi: [10.1080/21507740.2021.2001078](https://doi.org/10.1080/21507740.2021.2001078).