

Editorial

A Neuroscience-Based Nomenclature (NbN) for Psychotropic Agents

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On January 1, 2017, the *International Journal of Neuropsychopharmacology* will adopt the Neuroscience-based-Nomenclature (NbN). This will mark the culmination of a process that began in 2008 and involved a working group of members from 5 scientific organizations (the American, Asian, European, and International Colleges of Neuropsychopharmacology, as well as the International Union of Basic and Clinical Pharmacology). This group was tasked with building a classification system for psychotropic agents that would meet the requirements of a rational nomenclature. The expectations were that it would: (1) be based on contemporary knowledge, (2) help clinicians make informed decisions when choosing a first or subsequent pharmacological intervention, (3) provide a naming system that does not conflict with the use of medications, and (4) be capable of accommodating new types of compounds.

The impetus for this initiative came from the realization that our existing nomenclature has been overtaken by science and clinical reality. In the 1950s when the therapeutic benefits of chlorpromazine and imipramine were discovered in psychosis and depression, respectively, they were subsequently designated as antipsychotic and antidepressant medications. There was no need for a more complex nomenclature at that time. However, this scheme rapidly became obsolete, because it was observed that some of these medications were effective in other brain disorders. For instance, in the 1970s the efficacy of the antidepressant chlorimipramine was extended to obsessions and compulsions. In addition, the utility of imipramine in panic disorder was clearly established, and tricyclic antidepressants are commonly used in pain disorders. Antiepileptics have been used as mood stabilizers in bipolar disorder, antidepressants as first-line treatment for anxiety disorders, and now certain atypical antipsychotics are indicated in unipolar major depressive disorder with inadequate response to an antidepressant drug. Until recently, there has not been any concerted effort to classify psychotropic agents, and the pharmaceutical industry has been coming up with names and abbreviations largely based on attempts to differentiate their new medications from a marketing standpoint (Nutt 2009; Stahl 2013). One of the main consequences of this lack of orderliness is the confusion, and at times, stigma, patients face by taking “mislabelled” medications.

After consulting attendees at several international meetings, the outcome of this initiative, namely the NbN, was presented at the Annual Meeting of the European College of Neuropsychopharmacology in 2014 in the form a book and a free downloadable app (Zohar et al., 2014, 2015). First and foremost, NbN classifies psychotropic agents ($n=125$ as of 2016) on the basis of the targeted neurotransmitter/molecule/system being primarily modified in which there are 10 pharmacological domains and 10 modes/mechanisms of action, that is, it is based on their main mechanisms of action. These are no new terms that scientists and clinicians have to learn. The pharmacological domains are, for instance, serotonin, norepinephrine, and opioid, whereas the modes include terms such as agonist, antagonist, and enzyme inhibitor. These are established, known terms that when put into practice, will only serve to clarify the confusion as well as assist clinicians with successfully utilizing medications while decreasing the occurrence of irrational polypharmacy, an outcome that is especially important with the number of medications added to the market each year and their varying uses. It deserves emphasis that a nomenclature based on mechanism of action is consistent what was proposed more than a century ago by a founder of modern pharmacology, Rudolph Buchheim (Muscholl, 1995).

The classification encompasses 4 additional dimensions: (1) approved indications by the main regulatory agencies, (2) efficacy consistent with the major treatment guidelines and main side effects, (3) practical notes describing important drug interactions and specific warnings, and (4) neurobiological effects. This tool is not a prescriber's guide with specific doses, and the task force chose to abstain from this issue because drug regimens vary in different countries.

The app (NbN), available on Google Search and the Apple Store, can be searched by a variety of key words that include, for example, generic and brand names of drugs, indications, neurotransmitters, and mechanisms of action. It is available in English, Spanish, and Japanese. It is currently being translated into other languages. Comments, additions, and corrections can be sent directly to the task force through the app, and the committee meets twice each year to update the classification.

There is also a website describing the nomenclature and a short video explaining the mission and scope of NbN (<http://nbnomenclature.org>).

Apart from the 5 international organizations endorsing NbN, the chief editors of 22 scientific journals are supporting the development of this classification system for eventual implementation within the scientific literature. A variety of symposia at international meetings, including the annual meeting of the American Psychiatric Association, have already been held or are planned for later in 2016 to present the NbN to scientists and clinicians.

So what does this mean for the authors who will be submitting articles in 2017? It will require you to adjust terms currently in use, for example, atypical antipsychotic or anxiolytic drugs. Instead, you will now use the nomenclature in NbN, for example, olanzapine will be described as a dopamine multifunctional agent, whereas diazepam will be characterized as a GABA positive allosteric modulator. Their therapeutic actions will then be specified, as necessary, for the indication that is being investigated. For instance, we will encourage authors to use terms such as "a drug used for the treatment of psychosis or depression." We are also expanding the number of keywords allowed to require that for all the drugs covered in the paper, the NbN nomenclature can be included, and we will add a specific subcategory NbN to the keyword finder. On the website shown above, there is a special tag, For Authors. We are now developing a link to such resources in our journal's Instructions for Authors. We will be sending some more specific information in a subsequent editorial this fall, but wanted to make you aware of the upcoming change now. Also, given some likely confusion that will occur as this change is implemented, until at least July 2017, authors may choose to include a reference to the historical classification in brackets, such as: [formerly referred to as an antipsychotic].

We recognize that this will present some additional challenges for you. Our hope, though, as editors of journals, is that this change will facilitate a clearer understanding of the pharmacology underlying our drug treatments and reduce the confusion that arises from our existing nomenclature.

Statement of Interest

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