The Diagnostic and Statistical Manual of Mental Disorders (DSM) is the standard diagnostic system for mental disorders in the United States and numerous healthcare entities around the world, including Canada. The DSM is primarily a tool that was developed to guide to clinical practice through the provision of diagnostic criteria for mental disorders that enabled a common language for clinical communication. In addition to criteria provided to help clinicians determine diagnosis, entries are accompanied by diagnostic codes – largely used for billing and administrative purposes – and narrative text that expounds on features relevant to assessment and research, such as age, gender, and cultural-related information; development and course of illness; prevalence; and differential diagnosis. In addition to its central role as a tool for patient care, the DSM is used by researchers, insurance companies, legislators and policy makers, and health statisticians. Revisions are coordinated by the American Psychiatric Association (APA) and have generally been undertaken every 15-20 years.

The Fifth Edition of the DSM, DSM-5, was published in May 2013, following a decade-long development process to review the scientific foundations and clinical utility of the manual and, when indicated, develop new criteria and text. This revision was driven by evidence from the clinical, epidemiological, neuroscience, and genetic literature, which suggested that the criteria and categorical classification approach used in the DSM-IV no longer reflected the evidence or patient and clinician realities, and had started to hinder research progress. The literature also identified serious implications associated with the use of the DSM-IV, including the over-occurrence of multiple diagnoses within the same patients, excessive use of “not otherwise specified” diagnoses, and an over-emphasis in research on criteria reliability rather than other important indicators, such as clinical utility, feasibility, and validity. These issues formed the basis of the DSM-5 Task Force and Work Groups proposals to develop the DSM-5. The highest priority in the revision of the DSM was to optimize its clinical usefulness with changes guided by clinical and research evidence to bring better scientific and clinical rigor to the diagnosis of mental disorders.

The degree to which the DSM-5 reflects the latest empirical evidence is among the most prominent changes, and is especially recognizable in its revised chapter organization. Previously, diagnostic groups were based on similarities in symptom presentation. But, as our understanding of neuroscience has further developed, it has become clear that classification based on shared genetic and pathophysiological factors, in addition to clinical similarities, will better facilitate research to identify causes of mental disorders, biomarkers, and improved treatments. For example, the most commonly studied mental disorders, autism, attention-deficit/hyperactivity disorder (ADHD), schizophrenia, major depressive disorder, and bipolar disorder, all appear to have significant genetic overlap with one another – a relationship that is particularly strong for schizophrenia and bipolar disorder. Accordingly, the DSM-5 places the chapters on neurodevelopmental disorders (which include autism spectrum disorder and ADHD), schizophrenia spectrum and other psychotic disorders, bipolar and related disorders, and depressive disorders proximal to one another.

Advances in pathophysiology, brain imaging, and neurogenetics also informed the need to redistribute certain disorders from their DSM-IV classification. For instance, the DSM-IV’s anxiety disorders now exist across four different chapters in the DSM-5 (anxiety disorders; obsessive-compulsive and related disorders; trauma- and stress-related disorders; and dissociative disorders). Recent studies have shown that obsessive-compulsive and related disorders (e.g., hoarding disorder, skin picking disorder, hair pulling disorder, etc.) are likely to involve distinctive neurocircuitry dysfunctions as compared...
to other anxiety disorders (e.g., social anxiety disorder [social phobia], panic disorder, specific phobia, etc.), which supported their disaggregation and redistribution into separate chapters.

The DSM-IV chapter on disorders typically diagnosed in infancy, childhood, and adolescence has been redistributed across different chapters in the DSM-5 based upon scientific evidence of their biologic relatedness. For instance, separation anxiety disorder and selective mutism are now in the anxiety disorders chapter; reactive attachment disorder and disinhibited social engagement disorder in the trauma and stress-related disorders chapter; pica and rumination in the feeding and eating disorders chapter; encopresis and enuresis in a separate elimination disorders chapter; and conduct disorder and oppositional-defiant disorder in the disruptive, impulse-control, and conduct disorders chapters. The DSM-IV’s chapter on impulse-control disorders not elsewhere classified is also now more appropriately rearranged across obsessive-compulsive and related disorders (i.e., trichotillomania [hair-pulling disorder]); substance-related and addictive disorders (i.e., gambling disorder); and disruptive, impulse-control, and conduct disorders chapters. Lastly, the DSM-5’s chapters loosely reflect a developmental grouping with conditions more likely to be diagnosed in infancy and childhood placed earlier in the manual (e.g., neurodevelopmental disorders), conditions diagnosed in later life placed near the end (e.g., neurocognitive disorders), and those commonly seen in adulthood generally in the midsection of the manual. This is also replicated in the listing of disorders themselves within several, though not all, of the chapters, including the chapters on depressive disorders (i.e., disruptive mood dysregulation disorder [DMDD] listed first), anxiety disorders (i.e., separation anxiety disorder and selective mutism are the first two listed), trauma- and stress-related disorders (i.e., reactive attachment disorder and disinhibited social engagement disorders are the first two listed), and feeding and eating disorders (i.e., pica, rumination, and avoidant/restrictive food intake disorder are the first three listed).

The structure of diagnostic criteria in the DSM-IV is such that individuals either do or do not meet criteria for a disorder, which suggests that there is a discrete boundary between “normal” and “disordered” brain functioning. This is in opposition to much of general medicine: there is no single blood pressure reading, for instance, that demarcates having or not having hypertension; instead, there are gradients of elevations, from mild, to moderate, and so on, and these delineations are important for informing physicians’ treatment decisions. The same is true for the assessment of body mass index, serum cholesterol, glycosylated hemoglobin, left ventricular ejection fraction, etc. In the diagnosis and treatment of mental disorders, little guidance is given for how to account for variations that deviate from the strict criteria and diagnostic thresholds, such as mild symptoms, atypical presentations, or subthreshold symptoms from other disorders. As a result, these patients often land in the “not otherwise specified” (NOS) category of diagnosis, which is not clinically useful and does little to enhance treatment development. This indicates the need for a more dimensional approach to the diagnosis of mental disorders or, at least, the need for a combined categorical-dimensional system.

The move towards a dimensional approach is slow but ongoing. In the DSM-5, efforts were made to include different levels of dimensional assessments that can be employed to better characterize distinctions of disorders. These include, for instance, clinician and patient (or parent/informant) rated dimensional assessment of symptom domains that are important across all mental disorders (i.e., cross-cutting measures), and patient (or parent/informant) assessment of disability. Included in the main sections of the manual (i.e., Section II) are clinician-rated dimensional assessment of the severity of some, but not all, DSM-5 diagnoses, such as autism spectrum disorder, substance use disorders, anorexia nervosa, and bulimia nervosa. The patient (or parent/informant) rated cross-cutting, diagnostic-specific severity, and disability measures are included in Section III of the manual and in the online supplemental materials for the DSM-5 (http://www.psychiatry.org/dsm5). Section III indicates the need for further testing in the field. Clinicians and researchers are encouraged to evaluate the measures’ usefulness in describing patients’ clinical status and response to treatment.

The cross-cutting dimensional measures assess symptoms that cut across most, if not all, mental disorders – such as depressed mood, anxiety, cognition problems, substance use, and sleep disturbance – is analogous to general medicine’s review of systems. This measure calls attention to symptoms that may or may not indicate the presence of a disorder (but nonetheless may indicate a need for treatment), and could otherwise be overlooked during clinical exam. If endorsed, a second level of dimensional assessments can be administered to explore the symptom(s) in greater detail, providing clinicians with clues as to
whether related symptoms or, possibly, even a full disorder may be present. If a clinician determines that a disorder is present (based on responses to dimensional assessments as well as diagnostic interview and clinical judgment), another level of dimensional assessment can provide quantitative ratings of the severity of the disorder, which help establish baseline functioning and aid in tracking clinical course and treatment response. Finally, inclusion of the World Health Organization Disability Assessment Schedule (WHODAS) 2.0 provides an alternate method for the assessment of disability and functioning. The WHODAS 2.0 allows for a thorough assessment of disability and functioning without confounding from the effects of symptoms. The fact that these dimensional measures are completed by the patient (or parent/informant) is reflective of recent healthcare trends to more actively adopt patient-reported outcomes as part of clinical care, which may improve decision-making and quality of care and is already standard in clinical trials and drug and device labeling.

Beyond the organization of the diagnostic chapters and disorders, other notable modifications were endorsed to improve clinical care, such as the addition of new disorders. Autism spectrum disorder (ASD), which folds DSM-IV’s autism, Asperger’s disorder, childhood disintegrative disorder, and pervasive developmental disorder NOS, was proposed after a rigorous review of existing data indicated the disorders were not consistently and reliably diagnosed and that evidence indicating their unique associated features, familial history, treatment response, and prognosis was lacking.1 However, the DSM-5’s specification of the severity of social communication impairments and restricted repetitive patterns of behaviors, variability, onset, and course led to inclusion of ASD specifiers to demarcate particular presentations, such as whether or not accompanying intellectual impairment or language impairment are present. This will allow children to be diagnosed more accurately while preserving the DSM-IV disorders that allow already-diagnosed individuals to receive insurance coverage and educational assistance.

Major neurocognitive disorders (NCD) replace DSM-IV’s various dementia and amnestic disorder diagnoses. Mild neurocognitive disorders were approved as mental disorders for the DSM-5, after having been in the appendix of the DSM-IV. Each is accompanied by specific subtypes, including diagnostic criteria and text, to help better describe potential underlying causes of the cognitive impairment, including Alzheimer’s disease, HIV infection, vascular disease, traumatic brain injury, and frontotemporal disease.

Individuals with these disorders are frequently the subject of research and treatment development, and the provision of specific criteria and more detailed text descriptions for each of the NCD subtypes should facilitate advances in those areas. These patients are also often encountered in clinical settings, and the revised criteria should yield more accurate and reliable diagnoses.

Among other new disorders are hoarding disorder, premenstrual dysphoric disorder, DMDD, binge eating disorder, restless legs syndrome, REM sleep behaviour disorder, and excoriation (skin-picking) disorder. Proposals for novel diagnoses were developed only after the DSM-5 Work Groups conducted thorough literature reviews and, in some instances, secondary data analyses to determine the validity and public health need for inclusion. Some proposals did not meet the standard for inclusion set by the various review committees charged with assessing all major proposed changes to the DSM-5, and in many cases, those proposals were accepted into the DSM-5’s chapter on Conditions for Further Study. These include attenuated psychosis syndrome, caffeine use disorder, Internet gaming disorder, and non-suicidal self-injury. While criteria and text are provided for each of these, they are not considered official mental disorders and their criteria are not to be used clinically; they are primarily for further research to determine whether inclusion in a future edition of DSM is warranted.

In summary, the development of diagnostic criteria that are completely dimensional and/or are based entirely on biological and genetic markers would be ideal since this would provide for more reliable and valid diagnosis of mental disorders. However, in the absence of such biological and genetic markers, and with a focus to enhance the diagnosis and care of patients with mental health problems, the DSM-5 has relied on clinical experience as well as existing and growing empirical evidence to guide the revision process. This has resulted in an updated manual that will help clinicians better describe and diagnose their patients. The inclusion of clinicians’ dimensional rating of the severity for some diagnoses is a significant step towards this endeavor to have a more dimensional assessment of mental disorders. The DSM-5’s cross-cutting dimensional measures are also a major step towards this endeavor. This is complementary to the National Institute of Mental Health’s Research Domain Criteria (RDoC) initiative, which calls for the development of “new ways of classifying psychopathology based on dimensions of observable behaviours and neurobiological measures.” While the RDoC emphasises the dimensional approach to the classification
of psychopathology from a more basic science perspective, the DSM examines similar issues from a clinical research and practice perspective. It is hoped that, with continuing research, the two approaches will merge, resulting in a clinically useful diagnostic system that is fully informed by neuroscience and basic behavioural science.

References
1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. Arlington, VA. 2013.
2. Genetic cross group Cross-Disorder Group of the Psychiatric Genomics Consortium: Identification of risk loci with shared effects on five major psychiatric disorders: a genome-wide analysis. The Lancet 2013; February 28. [Epub ahead of print]
3. Schulze TG, Akula N, Breuer R, Steele J, Nalls MA, Singleton A, Degenhardt FA, Nöthen MM, Cichon S, Rietschel M. The Bipolar Genome Study, McMahon FJ: Molecular genetic overlap in bipolar disorder, schizophrenia, and major depressive disorder. World J Biol Psychiatry. 2012 Mar 9. [Epub ahead of print]
4. Lord C, Petkova E, Hus V, Gan W, Lu F, Martin DM, Ousley O, Guy L, Bernier R, Gerds J, Algermissen M, Whitaker A, Sutcliffe JS, Warren Z, Klin A, Saulnier C, Hanson E, Hundley R, Piggot J, Fombonne E, Steiman M, Miles J, Kanne SM, Goin-Kochel RP, Peters SJ, Cook EH, Guter S, Tjernagel J, Green-Snyder LA, Bishop S, Esler A, Gotham K, Lyster R, Miller F, Olson J, Richter J, Risi S: A multisite study of the clinical diagnosis of different autism spectrum disorders. Arch Gen Psychiatry 2012; 69:306-313.
5. Insel T, Cuthbert B, Garvey M, Heinssen R, Pine DS, Quinn K, Sanislow C, Wang P. Research Domain Criteria (RDoC): Toward a New Classification Framework for Research on Mental Disorders. Am J Psychiatry 2010; 167:748-751.

Diana E. Clarke

Dr. Clarke is the Research Statistician/Epidemiologist with the American Psychiatric Association Division of Research and the American Psychiatric Institute for Research and Education, and the an Adjunct Assistant Professor in the Department of Mental Health at Johns Hopkins Bloomberg School of Public Health. Her work with the APA over the past 4 years has centered on conducting research studies using data from a variety of sources to help inform the DSM-5 revision process. This includes the planning, development, implementation, and overseeing the multisite DSM-5 field trials and working as a member of the DSM-5 Research Group and the DSM-5 Study Groups on Gender and Cross-Cultural Issues, Impairment and Disability, and Diagnostic Assessment Instruments. Her research interests are centers on the epidemiology of mental disorders and specifically on obtaining accurate assessments of mental health predictors and outcomes such as apathy, dementia, depression, and suicidal behaviors. She received a bachelor’s degree with majors in biology and psychology from York University, her master’s and doctorate degrees in Epidemiology and Aging from University of Toronto (CIHR-funded), and postdoctoral fellowships in Psychiatric Epidemiology in the Department of Mental Health at Johns Hopkins Bloomberg School of Public Health funded by the Canadian Institute for Health Research, in Psychiatric Epidemiology and Population Health Studies funded by the Department of Psychiatry, University of Toronto, and in traumatic brain injury research at Toronto Rehabilitation Institute and University of Montreal. She has received a number of awards for her research and studies in Aging and the Life Course as well as her research on suicidal behaviors in Holocaust survivors and traumatic brain injury. She has participated in several collaborative research projects at CAMH, Toronto Rehabilitation Institute and the APA, including the DSM-5 Field Trials.

Emily A. Kuhl

Emily A. Kuhl, Ph.D., is the Senior Science Writer and APA/DSM-5 Text Editor at the American Psychiatric Association. Her primary involvement in DSM-5 was in editing and coordinating the production of the draft manual and in serving as the principle writer and editor for scientific and lay audience publications related to DSM-5. Dr. Kuhl completed her doctoral degree in clinical psychology from the University of Florida with a specialization in behavioral cardiology. Prior to graduate school, she was a copyeditor and writer at a daily newspaper in suburban Washington, D.C. She is a member of the American Medical Writers Association and the National Association of Science Writers.

Dr. William Narrow

Dr. William Narrow is the associate director of the American Psychiatric Association Division of Research and the American Psychiatric Institute for Research and Education, and the Research Director for the DSM-5 Task Force. His research interests are centered on the epidemiology of mental disorders and mental health services research, in particular disability related to mental disorders and the estimation of need for care. He received a bachelor’s degree (summa cum laude) with majors in biology and sociology from Boston University, a medical degree from Temple University, and a master’s degree in public health from the Johns Hopkins University. Dr. Narrow completed an internship in internal medicine at Michael Reese Hospital, specialty training in psychiatry at the University of Chicago, and a fellowship in epidemiology at the National Institute of Mental Health. Before his appointment at the APA in 2001, Dr. Narrow was senior advisor for epidemiology in the Office of the Director at the National Institute of Mental Health (NIMH). He has participated in several collaborative research projects at the APA and NIMH, including the DSM-5 Field Trials, an NIH-funded conference grant to develop a DSM-V research agenda, for which he was co-principal investigator, and the editorial board for development of the Diagnostic Interview Schedule for Children (DISC-IV). He is also an editor of the journal Social Psychiatry and Psychiatric Epidemiology.