Beyond Rising Rates: Personalized Medicine and Public Health Approaches to the Diagnosis and Treatment of Attention-Deficit/Hyperactivity Disorder

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The CDC’s data divide parents’ reports of health care provider diagnosis and treatment of ADHD into 3 main categories—ever diagnosed, currently diagnosed, and currently taking medication for ADHD. It is estimated that 11% of children 4 to 17 years old have ever been diagnosed with ADHD, 8.8% are currently diagnosed with ADHD, and 6.1% are taking medication for ADHD.

How do these rates compare with other studies? In 1998 the prevalence estimate from the National Institutes of Health Consensus Conference on ADHD was a conservative 3% to 5%, with many studies at that time reporting higher rates with up to 12% affected. The prevalence of ADHD varies considerably by country and region, but worldwide prevalence is about 5.3%, with higher rates in the developing world. Recent, more rigorous estimates from the United States suggest that 9% to 11% of children 5 to 13 years of age and 8.7% of teens 13 to 17 years of age meet criteria for ADHD. Although the numbers seem high, there is consistency among the CDC’s rates and recent studies, suggesting that ADHD is a highly prevalent condition.

Compared with other epidemiologic studies, the CDC’s current report has the advantage of describing changes in diagnostic and treatment rates of ADHD over time. Parent-reported ever-diagnosed ADHD increased by 42% from 2003 to 2011 and the prevalence of medicated ADHD increased by 28% from 2007 to 2011. Rising rates grab attention, but they do not really tell the important story.

Looking at the CDC’s most recent numbers in light of overall prevalence of ADHD, we have a community prevalence estimate of 9% to 11%, an approach that has the opportunity to receive evidence-based treatment. With ADHD it appears that we are getting close—after more than 2 decades of advocacy—to identifying and treating a majority of children and adolescents with ADHD.
ever diagnosed estimate of ADHD of 11%, currently diagnosed ADHD of 8.8%, and a treated ADHD population of 6.1%. Regardless of the change in rates over time, it appears that we may now be at a point when the prevalence of ADHD and diagnosis of ADHD on a lifetime basis are similar, i.e., 9% to 11%. Interestingly, when comparing lifetime with current diagnosis (i.e., 11% versus 8.8%), there also appears to be some pruning of the ADHD diagnosis—because children and teens no longer meet the criteria or perhaps because the initial impression of ADHD was incorrect.

Importantly, although rates of medication use have increased in the past decade, approximately 70% of children and teens with current ADHD are receiving medication treatment (6.1% divided by 8.8%). Although not every child or adolescent with ADHD requires medication treatment, the study documents a pattern of undertreatment. Because stimulant medication is the core evidence-based treatment for ADHD, undertreatment is an important take-home message from this study.

If the CDC’s data are consistent with other epidemiologic studies and the prevalence of treated ADHD is less than the current prevalence of ADHD, why is there such concern about overdiagnosis and overtreatment of ADHD? Several factors drive this reaction. First, the change in rates of diagnosis and treatment are emphasized, rather than the proportion of cases in the community who are diagnosed and treated. The CDC’s report of a 42% increase in diagnosis in less than a decade and a 28% increase in treatment in 4 years sounds shocking. However, when considering the similarity between the current diagnostic and treatment rates and community-based prevalence rates, the issue is much more clear—the CDC data suggest that we are getting to a point when children with ADHD in the United States may actually be getting an opportunity for a diagnostic assessment and appropriate evidence-based treatment.

Second, mental health professionals tend to approach psychiatric disorders in 2 different ways. A public health approach is used when thinking about the needs of all patients and a personalized medicine approach when thinking about individual patients. A public health approach advocates for improving recognition (the earlier, the better) and increasing the rate of treatment of psychiatric disorders. Given the limited number of psychiatric providers, the public health approach also encourages primary care providers to assist in the challenge of addressing the large mental health need. Over the past decade, an enormous amount of work has been done to promote improving recognition and treatment of ADHD, including public education; work by patient support organizations such as the Attention Deficit Disorder Association, Children and Adults with Attention-Deficit/Hyperactivity Disorder, and Mental Health America; government-lobbying by professional groups such as the Academy of Child and Adolescent Psychiatry and the American Psychiatric Association; de-stigmatization efforts; research support; drug and psychosocial treatment development; and, importantly, efforts to improve the ability of primary care providers to assess and treat (e.g., the ADHD toolkit for pediatricians). In contrast, the personalized medicine approach to psychiatric care focuses on the specific needs of an individual patient, comprehensive assessments, and tailoring treatment plans to the needs of the individual, family, and community. Personalized medicine is the great tradition of psychiatry.

The public health and personalized medicine approaches can be compatible, but often when reports of rising rates of diagnosis and treatment occur, they are put into conflict with each other. From the public health point of view, psychiatric problems are too extensive and the resources too limited to consider personalized medicine a realistic solution for the global mental health burden. From the personalized medicine point of view, the public health approach raises concerns about inadequate training of providers, inadequate assessments, premature and excessive medication treatment, and limited use of treatments other than medication.

It is problematic when we support an active public health approach to improving recognition and treatment of ADHD and then critique the results of that approach when we hear evidence of the absolute magnitude of the problem. Such critiques may lead to the devaluing of mental health services provided in primary care settings, create hesitancy among primary care providers to diagnose and treat ADHD, patients who have sought and received treatment may feel stigmatized, and, importantly, potential patients may be more reluctant to seek assessment and treatment. Interestingly, governments have reacted to reports of rising medication treatment rates with increasing monitoring efforts. For example, in response to increasing rates of medication use,
some states have developed monitoring programs (often for antipsychotics, stimulants, and opiates). Although monitoring is important to prevent harm and misuse, the manner in which monitoring is conducted also may inadvertently stigmatize the treatment, the treater, and ultimately the person who engages in the treatment, thus contributing to underuse of appropriate medication treatment. Ironically, most monitoring programs only assess outcome by decreasing perceived problematic trends in treatment but do not generally measure whether monitoring programs de-incentivize providers from offering appropriate treatment or inhibit patients from seeking it.

What is the solution? We need a public health approach and an individualized medicine approach for highly prevalent psychiatric disorders such as ADHD. However, we should not use one approach to criticize the other. When a public health approach is working to increase recognition and treatment, that is a good thing from a public health point of view. There are simply not enough psychiatric resources to address the public health challenge of ADHD and other childhood-onset conditions. We need public education and advocacy, improved recognition, and treatment on a public health level. We need more, not fewer, primary care providers to take on the challenge of high-quality psychiatric care. We need to be careful to not over-react from a personalized medicine point of view to changes in rates of diagnosis and treatment, when the pattern of diagnosis and treatment is appropriate from a population prevalence perspective. Reacting to rising rates of diagnosis and treatment with strategies that restrict access or stigmatize treatment and the individuals who seek it is a mistake. Moving psychiatry into primary care to meet the overall mental health challenge is essential.

Personalized medicine can contribute to the public health approach. We need to take what we have learned from personalized medicine and develop strategies for efficient, accurate, and high-quality assessments and treatment paradigms that primary care providers can actually use in busy practices.

In summary, the public health goal to improve recognition and treatment of ADHD is paying off in the United States. The rate of parent-reported ADHD diagnosis looks similar to community-based prevalence estimates. The rate of medication use approaches 70% of currently diagnosed cases, suggesting a substantial proportion of those with ADHD diagnoses are receiving treatment. It is important to not over-react simply to the notion of increasing rates of diagnosis and treatment without considering the whole picture. It is absolutely critical to benchmark current diagnosis and treatment rates against prevalence estimates to best serve the public health. Kudos to the CDC team, and we look forward to their next report!

**REFERENCES**


